

CANADIAN JOURNAL
OF PHYSICS

JOURNAL CANADIEN
DE PHYSIQUE

VOLUME 57, 1979

Subject Index / Index des matières¹

00.00	GENERAL	03.80	General theory of scattering
01.00	COMMUNICATION, EDUCATION, HISTORY, AND PHILOSOPHY	04.00	RELATIVITY AND GRAVITATION
01.10	Announcements, news, and organizational activities	04.20	General relativity
01.30	Physics literature and publications	04.30	Gravitational waves and radiation; theory
01.30B	<i>Publications of lectures (advanced institutes, summer schools, etc.)</i>	04.40	Continuous media; electromagnetic and other mixed gravitational systems
01.30C	<i>Conference proceedings</i>	04.50	Unified field theories and other theories of gravitation
01.30E	<i>Monographs and collections</i>	04.60	Quantum theory of gravitation
01.30K	<i>Handbooks, dictionaries, tables and data compilation</i>	04.80	Experimental tests of general relativity and observations of gravitational radiation
01.30M	<i>Textbooks for graduates and researchers</i>	04.90	Other topics in relativity and gravitation
01.30P	<i>Textbooks for undergraduates</i>	05.00	STATISTICAL PHYSICS AND THERMODYNAMICS
01.30R	<i>Surveys and tutorial papers; resource letters</i>	05.20	Statistical mechanics
01.30T	<i>Bibliographies</i>	05.30	Quantum statistical mechanics
01.40	Education	05.40	Fluctuation phenomena, random processes, and Brownian motion
01.50	Educational aids	05.50	Lattice theory and statistics; Ising problems
01.55	General physics	05.60	Transport processes, theory
01.60	Biographical, historical, and personal notes [*]	05.70	Thermodynamics
01.65	History of science	05.90	Other topics in statistical physics and thermodynamics
01.70	Philosophy of science		
01.75	Science and society	06.00	MEASUREMENT SCIENCE, GENERAL LABORATORY TECHNIQUES, AND INSTRUMENTATION SYSTEMS
01.90	Other topics of general interest	06.20	Metrology
02.00	MATHEMATICAL METHODS IN PHYSICS	06.20D	<i>Measurement and error theory</i>
02.10	Algebra, set theory, and graph theory	06.20F	<i>Units</i>
02.20	Group theory	06.20H	<i>Measurement standards</i>
02.30	Function theory, analysis	06.20J	<i>Determination of fundamental constants</i>
02.40	Geometry differential geometry, and topology	06.30	Measurement of basic variables
02.50	Probability theory, stochastic processes, and statistics	06.30C	<i>Spatial variables measurement</i>
02.60	Numerical approximation and analysis	06.30E	<i>Mass and density measurement</i>
02.70	Computational techniques	06.30F	<i>Time and frequency measurement</i>
02.90	Other topics in mathematical methods in physics	06.30G	<i>Velocity and acceleration measurement</i>
03.00	CLASSICAL AND QUANTUM PHYSICS; MECHANICS AND FIELDS	06.30L	<i>Measurement of basic electromagnetic variables</i>
03.20	Classical mechanics of discrete systems: general mathematical aspects	06.50	Data handling and computation
03.30	Special relativity	06.60	Laboratory techniques
03.40	Classical mechanics of continuous media: general mathematical aspects	06.70	General instrumentation
03.40D	<i>Mathematical theory of elasticity</i>	06.90	Other topics in measurement science, general laboratory techniques and instrumentation systems
03.40G	<i>Fluid dynamics, general mathematical aspects</i>	07.00	SPECIFIC INSTRUMENTATION AND TECHNIQUES OF GENERAL USE IN PHYSICS
03.40K	<i>Waves and wave propagation: general mathematical aspects</i>	07.10	Mechanical instruments and measurement methods
03.50	Classical field theory	07.20	Thermal instruments and techniques
03.65	Quantum theory; quantum mechanics	07.20D	<i>Thermometry</i>
03.70	Theory of quantized fields	07.20F	<i>Calorimetry</i>
		07.20H	<i>Furnaces</i>

¹The permission of the ICSU AB, Paris, for the Canadian Journal of Physics to use this subject classification is gratefully acknowledged.

07.20K	<i>High-temperature techniques and instrumentation; pyrometry</i>	12.90	Miscellaneous theoretical ideas and models
07.20M	<i>Cryogenics</i>	13.00	SPECIFIC REACTIONS AND PHENOMENOLOGY
07.25	Hygrometry	13.10	Weak and electromagnetic interactions of leptons
07.30	Vacuum production and techniques	13.15	Neutrino interactions
07.30C	<i>Vacuum pumps</i>	13.20	Leptonic and semileptonic decays of mesons
07.30D	<i>Vacuum meters</i>	13.25	Hadronic decays of mesons
07.35	High pressure production and techniques	13.30	Decays of baryons
07.50	Electrical instruments and techniques	13.40	Electromagnetic processes and properties of hadrons
07.55	Magnetic instruments and techniques	13.40D	<i>Electromagnetic mass differences</i>
07.58	Magnetic resonance spectrometers, auxiliary instruments and techniques	13.40F	<i>Electromagnetic form factors; electric and magnetic moments</i>
07.60	Optical instruments and techniques	13.40H	<i>Electromagnetic decays</i>
07.60D	<i>Photometry and radiometry</i>	13.40K	<i>Electromagnetic corrections to strong and weak interaction processes</i>
07.60F	<i>Polarimetry and ellipsometry</i>	13.60	Photon and charged-lepton interactions with hadrons
07.60H	<i>Refractometry and reflectometry</i>	13.60F	<i>Elastic and Compton scattering</i>
07.60L	<i>Interferometry</i>	13.60H	<i>Total and inclusive cross sections</i>
07.60P	<i>Optical microscopy</i>	13.60K	<i>Meson production</i>
07.62	Detection of radiation (bolometers, photoelectric cells, i.r. and submillimetre waves detection)	13.60M	<i>Meson-resonance production</i>
07.65	Optical spectroscopy and spectrometers	13.60P	<i>Baryon and baryon resonance production</i>
07.65E	<i>UV and visible spectroscopy and spectrometers</i>	13.65	Hadron production by electron-positron collisions
07.65G	<i>IR spectroscopy and spectrometers</i>	13.75	Hadron-induced low- and intermediate-energy reactions and scattering, energy ≤ 10 GeV
07.68	Photography, photographic instruments and techniques	13.75C	<i>Nucleon-nucleon, interactions, including antinucleon, deuteron etc., energy ≤ 10 GeV</i>
07.75	Mass spectrometers and mass spectrometry techniques	13.75E	<i>Hyperon-nucleon interactions (energy ≤ 10 GeV)</i>
07.77	Particle beam production and handling; targets	13.75G	<i>Pion-baryon interactions (energy ≤ 10 GeV)</i>
07.80	Electron and ion microscopes and techniques	13.75J	<i>Kaon-baryon interactions (energy ≤ 10 GeV)</i>
07.85	X-ray, gamma-ray instruments and techniques	13.75L	<i>Meson-meson interactions (energy ≤ 10 GeV)</i>
07.90	Other topics in specialised instrumentation	13.85	Hadron-induced high- and super-high-energy interactions, (energy > 10 GeV)
10.00	THE PHYSICS OF ELEMENTARY PARTICLES AND FIELDS	13.85D	<i>Elastic scattering (energy > 10 GeV)</i>
11.00	GENERAL THEORY OF FIELDS AND PARTICLES	13.85F	<i>Inelastic scattering, two particle final states (energy > 10 GeV)</i>
11.10	Field theory	13.85H	<i>Inelastic scattering, many-particle final states (energy > 10 GeV)</i>
11.20	S-matrix theory	13.85K	<i>Inclusive reactions, including total cross sections (energy > 10 GeV)</i>
11.30	Symmetry and conservation laws	13.85M	<i>Cosmic ray interactions</i>
11.40	Currents and their properties	13.90	Other topics in specific reactions and phenomenology of elementary particles
11.50	Dispersion relations and sum rules	14.00	PROPERTIES OF SPECIFIC PARTICLES AND RESONANCES
11.60	Complex angular momentum; Regge formalism	14.20	Baryons and baryon resonances
11.80	Relativistic scattering theory	14.40	Mesons and meson resonances
11.90	Other topics in general field and particle theory	14.60	Leptons
12.00	SPECIFIC THEORIES AND INTERACTION MODELS: PARTICLE SYSTEMATICS	14.80	Other and hypothetical particles
12.20	Electromagnetic and unified gauge fields	20.00	NUCLEAR PHYSICS
12.20D	<i>Specific calculations and limits of quantum electrodynamics</i>	21.00	NUCLEAR STRUCTURE
12.20F	<i>Experimental tests of quantum electrodynamics</i>	21.10	General and average properties of nuclei; properties of nuclear energy levels
12.20H	<i>Unified field theories and models</i>	21.10D	<i>Binding energy and masses</i>
12.25	Models for gravitational interactions	21.10F	<i>Shape, charge, and radius</i>
12.30	Models of weak interactions	21.10H	<i>Spin, parity, and isobaric spin</i>
12.40	Models of strong interactions	21.10J	<i>Spectroscopic factors</i>
12.40B	<i>Composite models of the structure of hadrons (general models, dynamics, schemes for confinement)</i>	21.10K	<i>Electromagnetic moments</i>
12.40C	<i>Properties of hadrons derived from the composite models</i>	21.10M	<i>Level density and structure</i>
12.40E	<i>Statistical models</i>	21.30	Nuclear forces
12.40F	<i>Bootstrap models</i>	21.40	Few-nucleon systems
12.40H	<i>Duality and dual models</i>	21.60	Nuclear-structure models and methods
12.40K	<i>Hadron classification schemes</i>	21.60C	<i>Shell model</i>
12.40M	<i>Complex angular momentum plane; Regge poles and cuts (Reggeons)</i>	21.60E	<i>Collective models</i>
12.40P	<i>Absorptive, optical, and eikonal models</i>	21.60F	<i>Models based on group theory</i>
12.40Q	<i>Potential models</i>	21.60G	<i>Cluster models</i>
12.40R	<i>Peripheral models (one or more particle exchange)</i>	21.60J	<i>Hartree-Fock and random-phase approximations</i>
12.40S	<i>Multiperipheral and multi-Regge models</i>		
12.40V	<i>Vector-meson dominance</i>		
12.70	Hadron mass formulas		

- 21.65 Nuclear matter
21.80 Hypernuclei
21.90 Other topics in nuclear structure
- 23.00 **NUCLEAR DECAY AND RADIOACTIVITY**
23.20 Electromagnetic transitions
23.20C *Lifetimes and transition probabilities*
23.20N *Internal conversion and extranuclear effects*
23.40 beta decay and electron and muon capture
23.60 alpha decay
23.90 Other topics in nuclear decay and radioactivity
- 24.00 **NUCLEAR REACTIONS AND SCATTERING: GENERAL**
24.10 Nuclear reaction and scattering models and methods
24.10H *Optical and diffraction models*
24.30 Resonance reactions and scattering
24.50 Direct reactions and scattering
24.60 Statistical theory and fluctuations
24.70 Polarization in reactions and scattering
24.75 General properties of fission
24.90 Other topics in nuclear reactions and scattering: general
- 25.00 **NUCLEAR REACTIONS AND SCATTERING: SPECIFIC REACTIONS**
25.10 Nuclear reactions and scattering involving few-nucleon systems
25.20 Photonuclear reactions and photon scattering
25.30 Lepton-induced reactions and scattering
25.40 Neutron-induced reactions and scattering
25.50 ^2H - and ^3H -induced reactions and scattering
25.60 ^3He - and ^4He -induced reactions and scattering
25.70 Heavy-particle-induced reactions and scattering
25.80 Meson- and hyperon-induced reactions and scattering
25.85 Fission reactions
25.90 Other topics in nuclear reactions and scattering: specific reactions
- 27.00 **PROPERTIES OF SPECIFIC NUCLEI LISTED BY MASS RANGES**
27.10 $A \leq 5$
27.20 $6 \leq A \leq 19$
27.30 $20 \leq A \leq 38$
27.40 $39 \leq A \leq 58$
27.50 $59 \leq A \leq 89$
27.60 $90 \leq A \leq 149$
27.70 $150 \leq A \leq 189$
27.80 $190 \leq A \leq 219$
27.90 $220 \leq A$
- 28.00 **NUCLEAR ENGINEERING AND NUCLEAR POWER STUDIES**
28.20 Neutron physics
28.40 Nuclear reactors
28.40G *Nuclear reactor materials*
28.45 Operation of nuclear reactors
28.45G *Fuel preparation and reprocessing*
28.50 Specific types of reactors, reactor applications
28.50R *Fusion reactors and thermonuclear power studies*
28.60 Isotope separation and enrichment
28.70 Nuclear explosions
28.80 Radiation technology, including shielding
28.90 Other topics in nuclear engineering and nuclear power studies
- 29.00 **EXPERIMENTAL METHODS AND INSTRUMENTATION FOR ELEMENTARY-PARTICLE AND NUCLEAR PHYSICS**
29.10 Preacceleration (injection)
29.15 Electrostatic and linear particle accelerators
- 29.20 Cyclic accelerators and storage facilities
29.25 Particle sources and targets, preparation and technology
29.30 Radiation spectrometers and spectroscopic techniques
29.40 Radiation detectors
29.60 Counting circuits and nuclear electronics
29.70 Radiation measurement, detection and counting
29.75 Polarization analysis
29.80 Nuclear information processing
29.90 Other topics in high-energy and nuclear experimental methods and instrumentation
- 30.00 **ATOMIC AND MOLECULAR PHYSICS**
- 31.00 **ELECTRONIC STRUCTURE OF ATOMS AND MOLECULES: THEORY**
31.10 General theory of electronic structure, electronic transitions, and chemical binding
31.15 General mathematical and computational developments
31.20 Specific calculations and results
31.20D *Complete ab initio calculations (exact or nearly exact calculations on small species)*
31.20E *Ab initio LCAO and GOSCF calculations*
31.20G *Other accurate, or nearly ab initio calculations (DIM method, SAMO method, etc.)*
31.20L *Statistical model calculations (Thomas-Fermi and Thomas-Fermi-Dirac models)*
31.20N *Semi-empirical NDA calculations (CNDO, INDO, MINDO, PCILLO methods, etc.)*
31.20P *Other semi-empirical calculations (Huckel, generalized Huckel, PPP methods, etc.)*
31.20R *Valence bond calculations (ab initio or not)*
31.20T *Electron correlation and CI calculations*
31.20W *Empirical methods (nonquantum methods for conformations, as Wiberg method, Westheimer method, etc.)*
31.30 Corrections to electronic structure
31.50 Excited states
31.70 Effects of molecular interactions on electronic structure
31.70D *Environmental and solvent effects*
31.70F *Potential-energy surfaces for chemical reactions and collisions*
31.70H *Time-dependent phenomena: excitation and relaxation processes, and reaction rates*
31.70K *Molecular solids*
31.90 Other topics in the theory of the electronic structure of atoms and molecules
- 32.00 **ATOMIC SPECTRA AND INTERACTIONS WITH PHOTONS**
32.20 Atomic spectra grouped by wavelength ranges
32.20B *Radiofrequency, microwave, and infrared spectra*
32.20J *Visible and ultraviolet spectra*
32.20R *X-ray spectra*
32.50 Fluorescence, phosphorescence
32.60 Zeeman and Stark effect
32.70 Spectral line shapes and intensities
32.80 Photon interactions with atoms
32.80B *Level crossing and optical pumping*
32.80D *Autoionization*
32.80F *Photoionization and photodetachment*
32.80H *Auger effect and inner-shell ionization*
32.80K *Multiphoton processes*
32.90 Other topics in atomic spectra and interactions with photons
- 33.00 **MOLECULAR SPECTRA AND INTERACTIONS WITH PHOTONS**
33.10 Calculation of molecular spectra
33.20 Molecular spectra grouped by wavelength ranges

33.20B	<i>Radio-frequency and microwave spectra</i>	35.20M	<i>Electric and magnetic moments (and derivatives), polarizability, and magnetic susceptibility</i>
33.20E	<i>Infrared spectra</i>	35.20P	<i>Rotation, vibration, and vibration-rotation constants</i>
33.20F	<i>Raman and Rayleigh spectra</i>	35.20S	<i>Hyperfine- and fine-structure constants</i>
33.20K	<i>Visible spectra</i>	35.20V	<i>Ionization potentials, electron affinities, molecular core binding energy</i>
33.20L	<i>Ultraviolet spectra</i>	35.20X	<i>Mass spectra</i>
33.20N	<i>Vacuum ultraviolet spectra</i>	35.20Y	<i>Correlation times in molecular dynamics</i>
33.20R	<i>X-ray spectra</i>	35.80	Atomic and molecular measurements and techniques
33.25	Nuclear magnetic resonance and relaxation; nuclear quadrupole resonance (NQR)	36.00	STUDIES OF SPECIAL ATOMS AND MOLECULES
33.30	Electron paramagnetic resonance and relaxation	36.10	Exotic atoms and molecules (containing mesons, muons, and other abnormal particles)
33.35	Double resonances and other multiple resonances	36.20	Macromolecules and polymer molecules
33.35H	<i>MODOR and PMDR</i>	36.40	Atomic and molecular clusters
33.40	Mössbauer spectra	36.90	Other special atoms and molecules
33.45	Magneto-optical and electro-optical spectra	40.00	CLASSICAL AREAS OF PHENOMENOLOGY
33.50	Fluorescence, phosphorescence; radiationless transitions (intersystem crossing, internal conversion)	41.00	ELECTRICITY AND MAGNETISM: FIELDS AND CHARGED PARTICLES
33.60	Zeeman and Stark effects	41.10	Classical electromagnetism
33.65	Photoelectron spectra	41.10D	<i>Electrostatics, magnetostatics</i>
33.70	Intensities and shapes of molecular spectral lines and bands	41.10F	<i>Steady-state electromagnetic fields; electromagnetic induction</i>
33.80	Photon interactions with molecules	41.10H	<i>Electromagnetic waves: theory</i>
33.80B	<i>Level crossing and optical pumping</i>	41.70	Particles in electromagnetic fields: classical aspects
33.80E	<i>Autoionization, photoionization, and photodetachment</i>	41.80	Particle beams and particle optics
33.80G	<i>Diffuse spectra: predissociation, photodissociation</i>	41.80D	<i>Electron beams and electron optics</i>
33.80K	<i>Multiphoton processes</i>	41.80G	<i>Ion beams and ion optics</i>
33.90	Other topics in molecular spectra and interactions with photons	41.90	Other topics in electricity and magnetism
34.00	ATOMIC AND MOLECULAR COLLISION PROCESSES AND INTERACTIONS	42.00	OPTICS
34.10	General theories and models	42.10	Propagation and transmission in homogeneous media
34.20	Interatomic and intermolecular potentials and forces	42.20	Propagation and transmission in inhomogeneous media
34.40	Elastic scattering of atoms and molecules	42.30	Optical information, image formation and analysis
34.50	Inelastic scattering of atoms and molecules	42.40	Holography
34.50E	<i>Rotational and vibrational energy transfer</i>	42.50	Quantum optics
34.50H	<i>Electronic excitation and ionization</i>	42.52	Masers
34.50L	<i>Chemical reactions, energy disposal, and angular distribution, as studied by atomic and molecular beams</i>	42.55	Lasing processes
34.70	Charge transfer	42.55B	<i>General theory of lasing action</i>
34.80	Electron scattering	42.55D	<i>CO₂ lasers</i>
34.80B	<i>Elastic scattering of electrons by atoms and molecules</i>	42.55F	<i>Inert gas lasers</i>
34.80D	<i>Atomic excitation and ionization by electron impact</i>	42.55H	<i>Lasing action in other gas lasers</i>
34.80G	<i>Molecular excitation, ionization and dissociation by electron impact</i>	42.55K	<i>Chemical lasers</i>
34.90	Other topics in atomic and molecular collision processes and interactions	42.55M	<i>Lasing action in liquids and organic dyes</i>
35.00	EXPERIMENTALLY DERIVED INFORMATION ON ATOMS AND MOLECULES; INSTRUMENTATION AND TECHNIQUES	42.55P	<i>Lasing action in semiconductors (with junctions)</i>
35.10	Atoms	42.55R	<i>Lasing action in other solids</i>
35.10B	<i>Atomic masses, mass spectra, abundances, and isotopes</i>	42.60	Laser systems and laser beam applications
35.10D	<i>Electric and magnetic moments, polarizability</i>	42.60B	<i>Design of specific laser systems</i>
35.10F	<i>Relativistic corrections, fine- and hyperfine-structure constants</i>	42.60D	<i>Laser resonators and cavities</i>
35.10H	<i>Ionization potentials, electron affinities</i>	42.60F	<i>Laser beam modulation</i>
35.20	Molecules	42.60H	<i>Optical problems related to properties and interactions of laser beams</i>
35.20B	<i>General molecular conformation and symmetry; stereochemistry</i>	42.60K	<i>Optical problems related to applications of laser beams</i>
35.20D	<i>Interatomic distances and angles</i>	42.65	Nonlinear optics
35.20G	<i>Bond strengths, dissociation energies, hydrogen bonding, etc.</i>	42.65B	<i>General theory</i>
35.20J	<i>Barrier heights (internal rotation, inversion); rotational isomerism, conformational dynamics</i>	42.65C	<i>Stimulated Raman, Brillouin and Rayleigh scattering; parametric oscillations and harmonic generation</i>
		42.65G	<i>Photon echoes, self-induced transparency, optical saturation and related effects</i>
		42.65J	<i>Beam trapping, self focusing, thermal blooming, and related effects</i>
		42.70	Optical materials
		42.70C	Glass
		42.70G	Light-sensitive materials

- 42.72 Optical sources and standards
 42.78 Optical lens and mirror systems
 42.80 Optical devices, techniques and applications
 42.82 Integrated optics
 42.85 Optical testing and workshop techniques
 42.90 Other topics in optics
- 43.00 ACOUSTICS
 43.20 General linear acoustics
 43.25 Nonlinear acoustics and macrosonics
 43.28 Aeroacoustics and atmospheric sound
 43.30 Underwater sound
 43.35 Ultrasonics, quantum acoustics, and physical effects of sound
 43.40 Mechanical vibrations and shock
 43.45 Statistical studies of acoustical response
 43.50 Noise, its effects and control
 43.55 Architectural acoustics
 43.60 Acoustic signal processing
 43.63 Acoustic holography
 43.70 Speech communication
 43.75 Music and musical instruments
 43.85 Acoustical measurements and instrumentation
 43.88 Transduction: devices for the generation and production of sound
 43.90 Other topics in acoustics
- 44.00 HEAT FLOW, THERMAL AND THERMODYNAMIC PROCESSES
 44.10 Heat conduction (models, phenomenological description)
 44.25 Convective and constrained heat transfer
 44.30 Heat transfer in inhomogeneous media and through interfaces
 44.40 Radiative heat transfer
 44.50 Thermal properties of matter (phenomenology experimental techniques)
 44.60 Thermodynamic processes (phenomenology experimental techniques)
 44.90 Other topics in heat flow, thermal and thermodynamic processes
- 46.00 MECHANICS, ELASTICITY, RHEOLOGY
 46.10 Mechanics of discrete systems
 46.20 Continuum mechanics
 46.30 Mechanics of solids and rheology
 46.30C Static elasticity
 46.30J Viscoelasticity, plasticity, viscoplasticity, creep, and stress relaxation
 46.30L Static buckling and instability
 46.30M Vibrations, aeroelasticity, hydroelasticity, mechanical waves, and shocks
 46.30N Fracture mechanics, fatigue, and cracks
 46.30P Friction, wear, adherence, hardness, mechanical contacts
 46.30R Measurement methods and techniques
 46.60 Rheology of fluids and pastes
 46.90 Other topics in mechanics, elasticity, and rheology
- 47.00 FLUID DYNAMICS
 47.10 General theory
 47.15 Laminar flows
 47.15C Laminar boundary layers
 47.15F Stability of laminar flows
 47.20 Hydrodynamic stability
 47.25 Turbulent flows, convection, and heat transfer
 47.25C Isotropic turbulence
 47.25F Boundary layer and shear turbulence
 47.25J Turbulent diffusion
 47.25M Noise (turbulence generated)
 47.25Q Convection and heat transfer
 47.25R Wakes
 47.30 Rotational flow and vorticity
 47.35 Waves
- 47.40 Compressible flows; shock and detonation phenomena
 47.40D General subsonic flows
 47.40H Transonic flows
 47.40K Supersonic and hypersonic flows
 47.40N Shock-wave interactions
 47.45 Rarefied gas dynamics
 47.50 Non-Newtonian dynamics
 47.55 Nonhomogeneous flows
 47.55B Cavitation
 47.55C Jets
 47.55E Nozzles
 47.55H Stratified flows
 47.55K Multiphase flows
 47.55M Flow through porous media
 47.60 Flows in ducts, channels, and conduits
 47.65 Magnetohydrodynamics and electrohydrodynamics
 47.70 Reactive, radiative, or nonequilibrium flows
 47.75 Relativistic fluid dynamics
 47.80 Instrumentation for fluid dynamics
 47.90 Other topics in fluid dynamics
- 50.00 FLUIDS, PLASMAS, AND ELECTRIC DISCHARGES
- 51.00 KINETIC AND TRANSPORT THEORY OF FLUIDS; PHYSICAL PROPERTIES OF GASES
 51.10 Kinetic and transport theory
 51.20 Viscosity and diffusion, experimental
 51.30 Thermal properties of gases
 51.40 Acoustical properties of gases; ultrasonic relaxation
 51.50 Electrical phenomena in gases
 51.60 Magnetic phenomena in gases
 51.70 Optical phenomena in gases
 51.90 Other topics in the physics of fluids
- 52.00 THE PHYSICS OF PLASMAS AND ELECTRIC DISCHARGES
 52.20 Elementary processes in plasma
 52.20F Electron collisions
 52.20H Atomic, molecular, heavy-particle collisions
 52.25 Plasma basic properties
 52.25F Transport properties
 52.25P Emission, absorption, and scattering of radiation
 52.30 Plasma flow; magnetohydrodynamics
 52.35 Waves, oscillations, and instabilities in plasma
 52.35R Plasma turbulence
 52.35T Shock waves
 52.40 Plasma interactions
 52.40D Electromagnetic wave propagation in plasma
 52.40F Antennas in plasma; plasma-filled wave guides
 52.40H Solid-plasma interactions
 52.40K Sheaths
 52.40M Beam interactions in plasma
 52.50 Plasma production and heating
 52.50J Plasma production and heating by laser beams
 52.50L Plasma production and heating by shock wave and wire explosion
 52.55 Plasma equilibrium and confinement
 52.60 Relativistic plasma
 52.65 Plasma simulation
 52.70 Plasma diagnostic techniques and instrumentation
 52.75 Plasma devices and applications
 52.80 Electric discharges
 52.90 Other topics in plasma physics and electric discharges
- 60.00 CONDENSED MATTER: STRUCTURE, THERMAL AND MECHANICAL PROPERTIES
- 61.00 STRUCTURE OF LIQUIDS AND SOLIDS; CRYSTALLOGRAPHY
 61.10 X-ray determination of structures

61.10D	<i>Theories of diffraction and scattering</i>	62.20P	<i>Tribology</i>
61.10F	<i>Experimental techniques</i>	62.30	Mechanical and elastic waves
61.12	Neutron determination of structures	62.40	Anelasticity, internal friction, and mechanical resonances
61.14	Electron determination of structures		
61.14D	<i>Theories of diffraction and scattering</i>	62.50	High-pressure and shock-wave effects in solids
61.14F	<i>Experimental diffraction and scattering</i>	62.60	Acoustic properties of liquids
61.14H	<i>Low-energy electron diffraction (LEED) and reflection high-energy electron diffraction (RHEED)</i>	62.65	Acoustic properties of solids
		62.80	Ultrasonic relaxation
		62.90	Other topics in mechanical and acoustical properties of condensed matter
61.16	Other determination of structures		
61.16D	<i>Electron microscopy determinations</i>		
61.16F	<i>Field-ion microscopy determinations</i>	63.00	LATTICE DYNAMICS AND CRYSTAL STATISTICS
61.16N	<i>EPR and NMR determinations</i>		
61.20	Classical, semiclassical, and quantum theories of liquid structure	63.10	General theory
61.25	Studies of specific liquid structures	63.20	Phonons and vibrations in crystal lattices
61.25M	<i>Liquid metals</i>	63.20D	<i>Phonon states and bands, normal modes, and phonon dispersion</i>
61.30	Liquid crystals	63.20H	<i>Phonon-phonon interactions</i>
61.40	Amorphous and polymeric materials	63.20K	<i>Phonon-electron interactions</i>
61.40D	<i>Glasses</i>	63.20M	<i>Phonon-defect interactions</i>
61.40K	<i>Polymers, elastomers, and plastics</i>	63.20P	<i>Localized modes</i>
61.50	Crystalline state	63.50	Vibrational states in disordered systems
61.50C	<i>Physics of crystal growth</i>	63.70	Statistical mechanics of lattice vibrations
61.50E	<i>Crystal symmetry; models and space groups, and crystalline systems and classes</i>	63.75	Statistical mechanics of displacive phase-transitions
61.50J	<i>Crystal morphology and orientation</i>	63.90	Other topics in lattice dynamics and crystal statistics
61.50K	<i>Crystallographic aspects of polymorphic and order-disorder transformations</i>		
61.50L	<i>Crystal binding</i>	64.00	EQUATIONS OF STATE, PHASE EQUILIBRIA, AND PHASE TRANSITIONS
61.55	Specific structure of elements and alloys	64.10	General theory of equations of state and phase equilibria
61.55D	<i>Nonmetallic elements</i>		
61.55F	<i>Metallic elements</i>	64.30	Equations of state of specific substances
61.55H	<i>Alloys</i>	64.60	General studies of phase transitions
61.60	Specific structure: inorganic compounds	64.70	Phase equilibria, phase transitions, and critical points of specific substances
61.65	Specific structure: organic compounds		
61.70	Defects in crystals	64.70D	<i>Solid-liquid transitions</i>
61.70B	<i>Interstitials and vacancies</i>	64.70E	<i>Transitions in liquid crystals; glass transitions</i>
61.70D	<i>Colour centres</i>	64.70F	<i>Liquid-vapour transitions</i>
61.70E	<i>Other point defects</i>	64.70H	<i>Solid-vapour transitions</i>
61.70G	<i>Dislocations: theory</i>	64.70J	<i>Liquid-liquid transitions</i>
61.70J	<i>Etch pits, decoration, transmission electron-microscopy and other direct observations of dislocations</i>	64.70K	<i>Solid-solid transitions</i>
61.70L	<i>Slip, creep, internal friction and other indirect evidence of dislocations</i>	64.75	Solubility, segregation, and mixing
61.70N	<i>Grain and twin boundaries</i>	64.80	Other phase properties of systems
61.70P	<i>Stacking faults, stacking fault tetrahedra, and other planar or extended defects</i>	64.90	Other topics in equations of state, phase equilibria, and phase transitions
61.70R	<i>Crystal impurities: general</i>	65.00	THERMAL PROPERTIES OF CONDENSED MATTER
61.70T	<i>Doping and implantation of impurities</i>	65.20	Heat capacities of liquids
61.70W	<i>Impurity concentration, distribution, and gradients</i>	65.40	Heat capacities of solids
61.70Y	<i>Interaction between different crystal structure defects</i>	65.50	Thermodynamic properties and entropy
		65.70	Thermal expansion and thermomechanical effects
		65.90	Other topics in thermal properties of condensed matter
61.80	Radiation damage and other irradiation effects		
61.80C	<i>X-rays</i>	66.00	TRANSPORT PROPERTIES OF CONDENSED MATTER (NONELECTRONIC)
61.80E	<i>Gamma rays</i>		
61.80F	<i>Electrons and positrons</i>	66.10	Diffusion and ionic conduction in liquids
61.80H	<i>Neutrons</i>	66.20	Diffusive momentum transport
61.80J	<i>Ions</i>	66.30	Diffusion in solids
61.80L	<i>Atoms and molecules</i>	66.30D	<i>Theory of diffusion and ionic conduction in solids</i>
61.80M	<i>Channelling, blocking and energy loss of particles</i>	66.30F	<i>Self-diffusion in metals, semimetals, and alloys</i>
61.90	Other topics in structure of liquids and solids	66.30H	<i>Self-diffusion and ionic conduction in nonmetals</i>
		66.30J	<i>Diffusion, migration, and displacement of impurities</i>
62.00	MECHANICAL AND ACOUSTIC PROPERTIES OF CONDENSED MATTER	66.30L	<i>Diffusion, migration, and displacement of other defects</i>
62.10	Mechanical properties of liquids		
62.20	Mechanical properties of solids (related to microscopic structure)	66.30N	<i>Chemical interdiffusion</i>
62.20D	<i>Elastic constants</i>	66.60	Thermal conduction in nonmetallic liquids
62.20F	<i>Deformation and plasticity</i>	66.70	Nonelectronic thermal conduction and heat-pulse propagation in nonmetallic solids
62.20H	<i>Creep</i>		
62.20M	<i>Fatigue, brittleness, fracture, and cracks</i>	66.90	Other topics in nonelectronic transport properties

- 67.00 **QUANTUM FLUIDS AND SOLIDS: LIQUID AND SOLID HELIUM**
- 67.20 Quantum effects on the structure and dynamics of nondegenerate fluids
- 67.40 Boson degeneracy and superfluidity of helium-4
- 67.50 Fermi fluids; liquid helium-3
- 67.60 Mixes systems; liquid helium-3, -4 mixtures
- 67.70 Films
- 67.80 Solid helium and related quantum crystals
- 67.90 Other topics in quantum fluids (e.g. neutron-star matter)
- 68.00 **SURFACES AND INTERFACES: THIN FILMS AND WHISKERS**
- 68.10 Fluid surfaces and fluid-fluid interfaces
- 68.15 Liquid thin films
- 68.20 Solid surface structure
- 68.25 Mechanical and acoustical properties of solid surfaces and interfaces
- 68.30 Dynamics of solid surfaces and interface vibrations
- 68.40 Surface energy of solid; thermodynamic properties
- 68.45 Solid-fluid interface processes
- 68.48 Solid-solid interfaces
- 68.55 Thin film growth, structure, and epitaxy
- 68.60 Physical properties of thin films, nonelectronic
- 68.70 Whiskers and dendrites: growth, structure, and nonelectronic properties
- 68.90 Other topics in the structure and nonelectronic properties of surfaces and thin films
- 70.00 **CONDENSED MATTER: ELECTRONIC STRUCTURE, ELECTRICAL, MAGNETIC, AND OPTICAL PROPERTIES**
- 71.00 **ELECTRON STATES**
- 71.10 General theories and computational techniques
- 71.20 Electronic density of states determinations
- 71.25 Nonlocalized single-particle electronic states
- 71.25C *Techniques of band-structure calculation (general theory, applications of group theory, analytic continuation, etc.)*
- 71.25H *Measurement of Fermi surface parameters*
- 71.25J *Effective mass and g-factors*
- 71.25L *Electron energy states in liquid metals*
- 71.25M *Electron energy states in amorphous and glassy solids*
- 71.25P *Band structure of crystalline metals*
- 71.25R *Band structure of crystalline elemental semiconductors*
- 71.25T *Band structure of crystalline semiconductor compounds and insulators*
- 71.30 Metal-insulator transitions
- 71.35 Excitons and related phenomena
- 71.36 Polaritons
- 71.38 Polarons and electron-phonon interactions
- 71.45 Collective effects
- 71.45G *Exchange, correlation, dielectric and magnetic functions, plasmons*
- 71.45J *Fermi-Thomas model*
- 71.45N *Calculations of total electronic binding energy*
- 71.50 Localized single-particle electronic states
- 71.55 Impurity and defect levels
- 71.65 Positron states
- 71.70 Level splitting and interactions
- 71.70C *Crystal and ligand fields*
- 71.70E *Spin-orbit coupling, Zeeman, Stark, and strain splitting*
- 71.70G *Exchange interactions*
- 71.70J *Nuclear states and interactions*
- 71.90 Other topics in electron states
- 72.00 **ELECTRONIC TRANSPORT IN CONDENSED MATTER**
- 72.10 Theory of electronic transport; scattering mechanisms
- 72.15 Electronic conduction in metals and alloys
- 72.15C *Electrical and thermal conduction in amorphous and liquid metals and alloys*
- 72.15E *Electrical and thermal conduction in crystalline metals and alloys*
- 72.15G *Galvanomagnetic and other magnetotransport effects*
- 72.15H *Thermomagnetic effects*
- 72.15J *Thermoelectric effects*
- 72.15L *Relaxation times and mean free paths*
- 72.15N *Collective modes; e.g. in one-dimensional conductors*
- 72.15Q *Scattering mechanisms and Kondo effect*
- 72.20 Conductivity phenomena in semiconductors and insulators
- 72.20D *General theory, scattering mechanisms*
- 72.20F *Low-field transport and mobility; piezoresistance*
- 72.20H *High-field and nonlinear effects*
- 72.20J *Charge carriers: generation, recombination, lifetime, and trapping*
- 72.20M *Galvanomagnetic and other magnetotransport effects*
- 72.20N *Thermomagnetic effects*
- 72.20P *Thermoelectric effects*
- 72.30 High-frequency effects; plasma effects
- 72.40 Photoconduction and photovoltaic effects; photodielectric effects
- 72.50 Acoustoelectric effects
- 72.55 Magnetoacoustic effects
- 72.60 Mixed conductivity and conductivity transitions
- 72.70 Noise processes and phenomena
- 72.80 Conductivity of specific semiconductors and insulators
- 72.80C *Elemental semiconductors*
- 72.80E *III-V and II-VI semiconductors*
- 72.80G *Transition-metal compounds*
- 72.80J *Other crystalline inorganic semiconductors*
- 72.80L *Organic semiconductors*
- 72.80N *Amorphous and glassy semiconductors*
- 72.80P *Liquid semiconductors*
- 72.90 Other topics in electronic transport in condensed matter
- 73.00 **ELECTRONIC STRUCTURE AND ELECTRICAL PROPERTIES OF SURFACES, INTERFACES, AND THIN FILMS**
- 73.20 Electronic surface states
- 73.25 Surface conductivity
- 73.30 Surface double layers, Schottky barriers, and work functions
- 73.40 Interfaces
- 73.40B *Static electrification*
- 73.40G *Tunnelling, general*
- 73.40J *Metal-to-metal contacts*
- 73.40L *Semiconductor-to-semiconductor contacts, p-n junctions, and heterojunctions*
- 73.40M *Semiconductor-electrolyte contacts*
- 73.40N *Metal-nonmetal contacts*
- 73.40Q *Metal-insulator-semiconductor structures*
- 73.40R *Metal-insulator-metal structures*
- 73.40S *Metal-semiconductor-metal structures*
- 73.60 Electronic properties of thin films
- 73.60D *Metallic thin films*
- 73.60F *Semiconductor films*
- 73.60H *Insulating thin films*
- 73.60K *Superconducting films*
- 73.90 Other topics in electrical properties of surfaces, interfaces, and thin films

74.00	SUPERCONDUCTIVITY	75.80	Magnetomechanical and magnetoelectric effects, magnetostriction
74.10	Occurrence, critical temperature	75.90	Other topics in magnetic properties and materials
74.20	Theory	76.00	MAGNETIC RESONANCES AND RELAXATION IN CONDENSED MATTER: MOSSBAUER EFFECT
74.20F	<i>BCS theory and its applications</i>	76.20	General theory of resonances and relaxation
74.30	General properties	76.30	Electron spin resonance and relaxation
74.30C	<i>Magnetization curves, Meissner effect, penetration depth</i>	76.30D	<i>Ions and impurities: general</i>
74.30E	<i>Thermodynamic properties; thermal conductivity</i>	76.30F	<i>Iron group (3d) ions and impurities (Ti-Cu)</i>
74.30G	<i>Response to electromagnetic fields, nuclear magnetic resonance, ultrasonic attenuation</i>	76.30H	<i>Platinum and palladium group (4d and 5d) ions and impurities (Zr-Ag and Hf-Au)</i>
74.40	Fluctuations and critical effects	76.30K	<i>Rare-earth ions and impurities</i>
74.50	Proximity effects, tunnelling phenomena, and Josephson effect	76.30M	<i>Colour centres and other defects</i>
74.55	Type-I superconductivity	76.30P	<i>Conduction electrons</i>
74.60	Type-II superconductivity	76.30R	<i>Free radicals</i>
74.60E	<i>Mixed state, H_2 surface sheath</i>	76.40	Diamagnetic and cyclotron resonances
74.60G	<i>Flux pinning; fluxon-defect interactions</i>	76.50	Ferromagnetic, antiferromagnetic, and ferrimagnetic resonances; spin wave resonance
74.60J	<i>Critical currents</i>	76.60	Nuclear magnetic resonance and relaxation
74.70	Superconducting materials	76.60C	<i>Chemical and Knight shifts</i>
74.70D	<i>Material effects on T_c, K, critical currents</i>	76.60E	<i>Relaxation effects</i>
74.70G	<i>Type-I superconductors (non-transition metals)</i>	76.60G	<i>Quadrupole resonance</i>
74.70L	<i>Type-II superconductors (transition metals, alloys and compounds)</i>	76.60L	<i>Spin echoes</i>
74.70N	<i>Dirty superconductors</i>	76.70	Magnetic double resonances and cross effects
74.70P	<i>Materials for high-field applications</i>	76.70D	<i>Electron-nuclear double resonance (ENDOR)</i>
74.90	Other topics in superconductivity	76.70E	<i>Dynamical nuclear polarization</i>
75.00	MAGNETIC PROPERTIES AND MATERIALS	76.70F	<i>Double nuclear magnetic resonance (DNMR)</i>
75.10	General theory and models of magnetic ordering	76.70H	<i>Optical double magnetic resonance (ODMR)</i>
75.10D	<i>Crystal-field theory and spin Hamiltonians</i>	76.70K	<i>Electron double resonance (ELDOR)</i>
75.10H	<i>Ising and other classical spin models</i>	76.80	Mossbauer effect; other gamma-ray spectroscopy
75.10J	<i>Heisenberg and other quantized localized spin models</i>	76.90	Other topics in magnetic resonances and relaxation
75.10L	<i>Band and itinerant models</i>	77.00	DIELECTRIC PROPERTIES AND MATERIALS
75.20	Diamagnetism and paramagnetism	77.20	Permittivity
75.20C	<i>Nonmetals</i>	77.30	Polarization and depolarization effects
75.20E	<i>Metals and alloys</i>	77.40	Dielectric loss and relaxation
75.20H	<i>Local moment in dilute alloys; Kondo effect</i>	77.50	Dielectric breakdown and space-charge effects
75.25	Spin arrangements in magnetically ordered materials (neutron studies, etc.)	77.55	Dielectric thin films
75.30	Magnetically ordered materials, other intrinsic properties	77.60	Piezoelectricity and electrostriction
75.30C	<i>Saturation moments and magnetic susceptibility</i>	77.70	Pyroelectric and electrocaloric effects
75.30D	<i>Spin waves</i>	77.80	Ferroelectricity and antiferroelectricity
75.30E	<i>Exchange and superexchange interactions</i>	77.80B	<i>Transitions and Curie point</i>
75.30G	<i>Anisotropy</i>	77.80D	<i>Domain structure and effects; hysteresis</i>
75.30H	<i>Magnetic impurity interactions</i>	77.85	Electrical resonances
75.30K	<i>Magnetic phase boundaries</i>	77.90	Other topics in dielectric properties and materials
75.30S	<i>Magnetocaloric effect</i>	78.00	OPTICAL PROPERTIES AND CONDENSED MATTER SPECTROSCOPY AND OTHER INTERACTIONS OF MATTER WITH PARTICLES AND RADIATION
75.40	Critical-point effects, specific heats, short-range order	78.20	Optical properties and materials
75.50	Studies of specific magnetic materials	78.20B	<i>General theory (for pure homogeneous materials)</i>
75.50B	<i>Ferromagnetism of Fe and its alloys</i>	78.20D	<i>Optical constants and parameters</i>
75.50C	<i>Ferromagnetism of other metals</i>	78.20E	<i>Optical rotatory power</i>
75.50D	<i>Ferromagnetism of nonmetals</i>	78.20F	<i>Birefringence</i>
75.50E	<i>Antiferromagnetics</i>	78.20H	<i>Piezo-, elasto- and acousto-optical effects</i>
75.50G	<i>Ferrimagnetics</i>	78.20J	<i>Electro-optical effects</i>
75.50K	<i>Amorphous magnetic materials</i>	78.20L	<i>Magneto-optical effects</i>
75.50M	<i>Magnetic liquids</i>	78.20N	<i>Thermo-optical effects</i>
75.60	Domain effects, magnetization curves, and hysteresis	78.30	Infrared and Raman spectra and scattering
75.60C	<i>Domain walls and domain structure</i>	78.35	Brillouin and Rayleigh scattering
75.60E	<i>Magnetization curves, hysteresis, Barkhausen and related effects</i>	78.40	Visible and ultraviolet spectra
75.60G	<i>High coercivity materials</i>	78.45	Stimulated emission
75.60J	<i>Fine-particle systems</i>	78.50	Impurity and defect absorption in solids
75.60L	<i>Magnetic aftereffects</i>	78.55	Photoluminescence
75.60N	<i>Magnetic annealing and temperature-hysteresis effects</i>	78.60	Luminescence spectra and radiative recombination
75.70	Magnetic films and plates	78.60F	<i>Electroluminescence</i>
75.70K	<i>Domain structure (magnetic bubbles)</i>	78.60H	<i>Cathodoluminescence, ionoluminescence</i>
		78.60K	<i>Thermoluminescence</i>
		78.60M	<i>Sonoluminescence, triboluminescence</i>

- 78.60P *Chemiluminescence*
 78.65 Optical properties of thin films
 78.70 Other interactions of matter with particles and radiation
 78.70B *Positron annihilation*
 78.70C *X-ray scattering*
 78.70D *X-ray absorption and absorption edges*
 78.70E *X-ray emission threshold and fluorescence*
 78.70G *Microwave and radiofrequency spectra*
 78.90 Other topics in optical properties of condensed matter and other interactions of matter with particles and radiation
- 79.00 **ELECTRON AND ION EMISSION BY LIQUIDS AND SOLIDS: IMPACT PHENOMENA**
 79.20 Impact phenomena
 79.20D *Laser-light impact phenomena*
 79.20F *Electron impact: Auger emission*
 79.20H *Electron impact: secondary emission*
 79.20K *Other electron impact phenomena*
 79.20N *Atom, molecule, and ion impact*
 79.20R *Atomic and molecular beam interactions*
 79.40 Thermionic emission
 79.60 Photoemission and photoelectron spectra
 79.70 Field emission and field ionization
 79.75 Exoelectron emission
 79.80 Resonance tunnelling
 79.90 Other topics in emission and impact phenomena in condensed matter
- 80.00 **CROSS-DISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY**
- 81.00 **MATERIALS SCIENCE**
 81.10 Methods of crystal growth and purification
 81.10B *Growth from vapour*
 81.10D *Growth from solutions*
 81.10F *Growth from melts*
 81.10H *Zone melting and zone refining*
 81.10J *Growth from solid phases*
 81.15 Methods of thin film depositions
 81.15C *Deposition by cathodic sputtering*
 81.15G *Vacuum deposition*
 81.15H *Chemical vapour deposition*
 81.15J *Ion plating and other vapour deposition*
 81.15L *Deposition from liquid phases (melts and solutions)*
 81.20 Other methods of preparation of materials
 81.20C *Vacuum methods*
 81.20E *Powder techniques, compaction and sintering*
 81.20G *Specific metals and alloys (compacts, pseudoalloys)*
 81.20J *Dispersion-, fibre- and platelet-reinforced metal-based composites*
 81.20L *Ceramics and refractories*
 81.20N *Cermets, ceramic and refractory composites*
 81.20P *Glasses*
 81.20Q *Glass-based composites, vitroceramics*
 81.20S *Polymers*
 81.20T *Reinforced polymers and polymer-based composites*
 81.30 Phase diagrams and microstructures developed by solidification and solid-solid phase transformations
 81.30B *Phase diagrams of metals and alloys*
 81.30D *Phase diagrams of other materials*
 81.30F *Solidification (any material)*
 81.30H *Constant-composition solid-solid phase transformations: polymorphic, massive, order-disorder (any material)*
 81.30K *Martensitic transformations (any materials)*
- 81.30M *Precipitation (any material)*
 81.40 Treatment of materials and its effects on microstructures and properties
 81.40C *Solid solution hardening, precipitation hardening, dispersion hardening*
 81.40E *Cold working, work hardening; annealing, recovery and recrystallisation; textures*
 81.40G *Other heat and thermomechanical treatments*
 81.40J *Elasticity and anelasticity*
 81.40L *Deformation, plasticity and creep*
 81.40N *Fatigue, embrittlement, and fracture*
 81.40P *Friction, lubrication, and wear*
 81.40R *Electrical and magnetic properties (related to treatment conditions)*
 81.40T *Optical properties (related to treatment conditions)*
 81.60 Corrosion, oxidation and surface treatments
 81.60B *Metals and alloys: dry and electrochemical corrosion*
 81.70 Materials testing
 81.90 Other topics in materials science
- 82.00 **PHYSICAL CHEMISTRY**
 82.20 Chemical kinetics
 82.20K *Potential energy surfaces for chemical reactions*
 82.20M *Nonequilibrium kinetics*
 82.20R *Energy distribution and transfer, relaxation*
 82.30 Specific chemical reactions; reaction mechanisms
 82.35 Polymer reactions and polymerization
 82.40 Chemical kinetics and reactions: special regimes
 82.40D *Atomic and molecular beam reactions*
 82.40T *Chemiluminescence and chemical laser kinetics*
 82.45 Electrochemistry and electrophoresis
 82.50 Photochemistry and radiation chemistry
 82.50E *Photodissociation, photoionization as studied by luminescence and radiationless transitions and intersystem crossing*
 82.55 Radiochemistry
 82.60 Chemical thermodynamics
 82.65 Surface processes
 82.70 Disperse systems
 82.80 Chemical analysis and related physical methods of analysis
 82.90 Other topics in physical chemistry
- 86.00 **ENERGY RESEARCH AND ENVIRONMENTAL SCIENCE**
 86.10 Energy resources and their utilisation
 86.10B *Fossil and other fuels*
 86.10D *Wind energy*
 86.10F *Tidal and flow energy*
 86.10H *Geothermal energy*
 86.10K *Solar energy*
 86.10Z *Other topics*
 86.30 Energy conversion
 86.30D *Electrochemical conversion: general*
 86.30E *Primary cells*
 86.30F *Secondary cells*
 86.30G *Fuel cells*
 86.30J *Photoelectric conversion: solar cells and arrays*
 86.30K *Photoelectrochemical conversion*
 86.30L *Electrogasdynamics and magnetohydrodynamic conversion*
 86.30M *Thermoelectric conversion*
 86.30N *Thermionic conversion*
 86.30P *Photosynthesis*
 86.30Q *Chemical energy conversion*
 86.30R *Thermal energy conversion (heat engines and heat pumps)*
 86.30S *Photothermal conversion*
 86.30Z *Other topics*
 86.40 Energy storage (secondary energy)
 86.40C *Storage in mechanical energy*

- 86.40F *Storage in thermal energy*
 86.40H *Storage in chemical energy*
 86.40K *Hydrogen storage and technology*
 86.40Z *Other topics*
 86.60 Requirement for energy: ecological aspects
 86.70 Environmental science
 86.70C *Soil*
 86.70E *Water*
 86.70G *Atmosphere*
 86.70J *Noise*
 86.70L *Measurement techniques in environmental science*
 86.70Z *Other topics*
 86.90 Other topics in energy research and environmental science
- 87.00 **BIOPHYSICS, MEDICAL PHYSICS, AND BIOMEDICAL ENGINEERING**
 87.10 General, theoretical, and mathematical biophysics
 87.15 Molecular biophysics
 87.15B *Structure, configuration, conformation, and active sites at the biomolecular level*
 87.15M *Interactions with radiations at the biomolecular level*
 87.16 Biothermics
 87.20 Membrane biophysics
 87.25 Cellular biophysics
 87.25D *Biological transport; cellular and subcellular transmembrane physics*
 87.30 Biophysics of neurophysiological processes
 87.30E *External and internal data communications, nerve conduction and synaptic transmission*
 87.32 Physiological optics, vision
 87.32C *Anatomy and optics of eye*
 87.32E *Physiology of the eye; nerve structure and function*
 87.32L *Light detection; adaptation and discrimination*
 87.32N *Colour detection; adaptation and discrimination*
 87.32S *Psychophysics of vision, visual perception, binocular vision*
 87.34 Audition
 87.36 Speech
 87.38 Mechano- and chemio-ceptions
 87.40 Biomagnetism
 87.45 Biomechanics, biorheology, biological fluid dynamics
 87.50 Biological effects of radiations
 87.50C *Bioacoustics (sonic and ultrasonic effects on living matter)*
 87.50E *Bio-optics (effects of microwaves, light, laser and other electromagnetic waves)*
 87.50G *Ionizing radiations (uv., X-ray, gamma-ray; particle radiation effects)*
 87.60 Medical and biomedical uses of fields, radiations, and radioactivity
 87.60B *Sonic and ultrasonic radiation*
 87.60D *Electric and magnetic fields (d.c. and pulsed)*
 87.60G *Laser beams, microwaves, and other electromagnetic waves*
 87.60J *Corpuscular radiation and radioisotopes*
 87.60L *Preparation of radioactive materials for medical and biomedical uses*
 87.60M *Radiation dosimetry*
 87.60P *Radiation protection*
 87.60R *Radioactive pollution*
 87.65 Aerospace bio- and medical physics (effects of accelerations, weightlessness and environment)
 87.70 Biomedical engineering
 87.70E *Diagnostic methods and instrumentation*
 87.70G *Patient care and treatment*
 87.70J *Prosthetics and other practical applications*
 87.80 Biophysical instrumentation and techniques
- 87.90 Other topics in biophysics, medical physics, and biomedical engineering
- 90.00 **GEOPHYSICS, ASTRONOMY AND ASTROPHYSICS**
- 91.00 **SOLID EARTH GEOPHYSICS**
 91.10 Geodesy and gravity
 91.25 Geomagnetism and palaeomagnetism; geoelectricity
 91.30 Seismology
 91.35 Earth's interior structure and properties
 91.40 Volcanology
 91.45 Physics of plate tectonics
 91.50 Marine geology and geophysics
 91.60 Physical properties of rocks and minerals
 91.65 Geophysical aspects of geology, mineralogy and petrology
 91.90 Other topics in solid Earth geophysics
- 92.00 **HYDROSPHERIC AND ATMOSPHERIC GEOPHYSICS**
 92.10 Physics of the oceans
 92.20 Interdisciplinary aspects of oceanography
 92.20N *Marine pollution*
 92.40 Hydrology and glaciology
 92.60 Meteorology
 92.60S *Climatology*
 92.60T *Air quality and air pollution*
 92.65 Atmospheric optics
 92.90 Other topics in hydrospheric and atmospheric geophysics
- 93.00 **GEOPHYSICAL OBSERVATIONS, INSTRUMENTATION, AND TECHNIQUES**
 93.30 Information related to geographical regions
 93.55 International organizations, national and international programs
 93.65 Data acquisition and storage
 93.85 Instrumentation and techniques for geophysical research
- 94.00 **AERONOMY AND SPACE PHYSICS**
 94.10 Physics of the neutral atmosphere
 94.10Q *Airglow and nightglow*
 94.10S *Aurora*
 94.20 Physics of the ionosphere
 94.30 Physics of the magnetosphere
 94.40 Cosmic rays
 94.40C *Origin and propagation outside the solar system*
 94.40E *Interplanetary propagation and effects*
 94.40H *Energetic solar particles and photons*
 94.40K *Solar modulation and geophysical effects*
 94.40L *Composition and energy spectra*
 94.40N *Extensive air showers*
 94.40R *High-energy interactions*
 94.40T *Muons and neutrinos*
 94.40V *Cosmic-ray effects in meteorites and terrestrial matter*
 94.60 Interplanetary space
 94.80 Aerospace facilities and techniques; space research
 94.90 Other topics in space physics
- 95.00 **FUNDAMENTAL ASTRONOMY AND ASTROPHYSICS, INSTRUMENTATION AND TECHNIQUES AND ASTRONOMICAL OBSERVATIONS**
 95.10 Fundamental astronomy
 95.10C *Celestial mechanics*
 95.30 Fundamental aspects of astrophysics
 95.30E *Atomic and molecular processes and interactions*
 95.45 Observatories
 95.55 Astronomical instruments

- 95.65 Auxiliary and recording instruments
 95.70 Other instrumentation and techniques
 95.75 Techniques of observation and reduction
 95.80 Astronomical observations (listed by techniques of observation)
 95.80D *Radio and radar*
 95.80G *Far infrared (bolometric, photoconductive)*
 95.80J *Photographic region (near infrared, visible, and normal ultraviolet)*
 95.80M *Space ultraviolet*
 95.80N *X-ray*
 95.80Q *Gamma-ray and elementary particle*
 95.80S *Other (including gravitational radiation, magnetograms, etc.)*
 95.85 Catalogues, atlases, etc.
 95.90 Other topics in astronomy and astrophysics
- 96.00 SOLAR SYSTEM
 96.10 General, solar nebula, and cosmogony
 96.20 Moon
 96.30 Planets and satellites
 96.30D *Mercury*
 96.30E *Venus*
 96.30G *Mars*
 96.30H *Asteroids*
 96.30K *Jupiter*
 96.30M *Saturn*
 96.30T *Other planets*
 96.50 Other objects in the planetary system
 96.50D *Interplanetary matter, magnetic and electric fields*
 96.50G *Comets*
 96.50K *Meteors, showers, and meteoroids*
 96.50M *Meteorites, micrometeorites*
- 96.60 Solar physics
 96.90 Other topics on the solar system
- 97.00 STARS
 97.10 Stellar characteristics
 97.20 Normal stars (by class): general or individual
 97.30 Variable and peculiar stars
 97.60 Late stage of stellar evolution
 97.60B *Supernovae*
 97.60G *Pulsars*
 97.60J *Neutron stars*
 97.60L *Black holes*
 97.80 Binary and multiple stars
 97.90 Other topics in stellar astronomy
- 98.00 STELLAR SYSTEMS: GALACTIC AND EXTRAGALACTIC OBJECTS AND SYSTEMS; THE UNIVERSE
 98.10 Stellar dynamics
 98.20 Stellar clusters and associations
 98.40 Interstellar matter; and nebulae
 98.50 The Galaxy, extragalactic objects and systems
 98.50K *Groups, clusters, superclusters*
 98.70 Other objects and background radiations of unknown origin and distances
 98.70D *Discrete radio sources*
 98.70J *Quasars*
 98.70L *IR sources*
 98.70Q *X-ray and gamma-ray sources*
 98.70S *Cosmic ray sources*
 98.70V *Background radiation*
 98.80 Cosmology
 98.90 Other topics in galactic and extragalactic astronomy

00.00 GENERAL

02.00 MATHEMATICAL METHODS IN PHYSICS

- Erratum: Une nouvelle équation intégrale pour l'étude de la radiation scalaire dans une cavité. B.T. Darling et J.A. Imbeau, 189.
 Etude numérique de la fonction de Green scalaire d'une cavité à l'aide d'une nouvelle équation intégrale. J.A. Imbeau et B.T. Darling, 190.
 Etude numérique des modes et fréquences propres d'une cavité à l'aide de la fonction de Green. J.A. Imbeau et B.T. Darling, 208.
 Generalized Moshinsky bracket recurrence relations. J.J. Bevelacqua, 1136.

02.50 Probability theory, stochastic processes, and statistics

- Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.

02.60 Numerical approximation and analysis

- Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.
 Numerical determination of some generic nonlinear excitations in condensed matter physics. J.F. Currie and A.R. Bishop, 890.

02.70 Computational techniques

- Application of finite difference methods to the inverse problem of wave propagation. M. Hron and M. Razavy, 1843.
 Random walk and $SU(2)$ Clebsch-Gordon coefficients. F. Lemire and J. Patera, 2050.

02.90 Other topics in mathematical methods in physics

- Products of generalized equivalent operators in angular momentum theory. S. Luryi, 327.
 A note on the solvability of simultaneous Wiener-Hopf equations. R.A. Hurd, 402.
 One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.

03.00 CLASSICAL AND QUANTUM PHYSICS; MECHANICS AND FIELDS

- Generalized Schwinger boson realizations and the oscillator-like coherent states of the rotation groups and the asymmetric top. P. Gulshani, 998.

03.20 Classical mechanics of discrete systems; general mathematical aspects

- Relationship between equilibrium configurations of certain dynamical systems and zeros of Laguerre polynomials. S. Ahmed, 1568.

03.30 Special relativity

- About the equivalence of Abraham's and Minkowski's electrodynamics. M. Kransy, 1022.

03.65 Quantum theory; quantum mechanics

- The linear potential eigenenergy equation. I: the coefficients $K_n(3f)$. A.F. Antippa and T. Nguyen Ky, 417.
 Erratum: A note on the calculation of $\langle J^2 \rangle$. M. Vallieres, S.G. Lie, and D.W.L. Sprung, 601.
 Sur l'existence d'une longueur élémentaire et d'un intervalle de temps élémentaire. II. R. Lacroix, 1681.
 Quantum-mechanical irreversible motion of an infinite chain. M. Razavy, 1731.
 One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.

03.80 General theory of scattering

- Existence of partial-wave two-cluster atomic scattering amplitudes. J. Nuttall and S.R. Singh, 449.

04.00 RELATIVITY AND GRAVITATION

04.20 General relativity

- Local relative motion in general relativity. F.I. Cooperstock and D.W. Hobill, 2066.

04.30 Gravitational waves and radiation; theory

- Local relative motion in general relativity. F.I. Cooperstock and D.W. Hobill, 2066.

04.40 Continuous media; electromagnetic and other mixed gravitational systems

- Physical interpretation of and light propagation in the nonsymmetric unified field theory. D.H. Boal and D.R. Noakes, 79.
 About the equivalence of Abraham's and Minkowski's electrodynamics. M. Kransy, 1022.

04.50 Unified field theories and other theories of gravitation

- Physical interpretation of and light propagation in the nonsymmetric unified field theory. D.H. Boal and D.R. Noakes, 79.
 The Newtonian theory of gravitation and its generalization. P. Rastall, 944.

04.80 Experimental tests of general relativity and observations of gravitational radiation

- Local relative motion in general relativity. F.I. Cooperstock and D.W. Hobill, 2066.
 Relativistic spin-spin interaction of two concentric shells. E. Pechlaner, 2185.

05.00 STATISTICAL PHYSICS AND THERMODYNAMICS

05.20 Statistical mechanics

Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.
 Density expansion of the correlation function of a hard sphere gas. D.G. Blair, N.K. Pope, and S. Ranganathan, 466.
 On the statistical mechanical interpretation of the translational energy dependence of rate processes. B. Shizgal and J.M. Fitzpatrick, 486.

05.40 Fluctuation phenomena, random processes, and Brownian motion

Thermalization of the ideal gas in a one-dimensional box. T. Morita and Y. Fukui, 1103.

05.50 Lattice theory and statistics; Ising problems

Finite-size effects in one-dimensional percolation: a verification of scaling theory. S. Greenspoon, 550.
 Extended high temperature low field expansions for the Ising model. S. McKenzie, 1239.

05.90 Other topics in statistical physics and thermodynamics

Cooperative behaviour in a nonlinear model of diffusion of information. Karmeshu and R.K. Pathria, 1572.

06.00 MEASUREMENT SCIENCE, GENERAL LABORATORY TECHNIQUES, AND INSTRUMENTATION SYSTEMS

06.60 Laboratory techniques

Métrologie de banc d'optique. Application au cas particulier d'un spectromètre à réseau concave disposé selon le montage de Rowland. C. Delisle, G. Bouillon et G. Tremblay, 1291.

07.00 SPECIFIC INSTRUMENTATION AND TECHNIQUES OF GENERAL USE IN PHYSICS

07.60 Optical instruments and techniques

Performance of optimum apodizers in presence of primary coma. S.C. Biswas and A. Boivin, 1388.

07.90 Other topics in specialised instrumentation

Fringe control techniques applied to holographic non-destructive testing (HNDT). C. Shakher and R.S. Sirohi, 2155.

10.00 THE PHYSICS OF ELEMENTARY PARTICLES AND FIELDS

11.00 GENERAL THEORY OF FIELDS AND PARTICLES

11.10 Field theory

Conformal transformations in spinor space-time. Nguyen Thi Hong, 298.
 Stringlike solitons in toroidal coordinates. J.G. Williams, 590.
 Callan-Symanzik and Weinberg equations: frame dependence of fixed points. R. Acharya, B.P. Nigam, and Z. Horváth, 1662.
 Canonical formulation of the free spin-2 field. G. McKeon, 2096.
 Electrodynamics of charged scalar solitons. T.F. Morris, 2171.

11.30 Symmetry and conservation laws

Spontaneous symmetry breakdown induced by quantum effects. G. McKeon, 603.

11.50 Dispersion relations and sum rules

The Muskhelishvili-Omnès equation and final state interactions. A.N. Kamal, 1815.

11.80 Relativistic scattering theory

Simplified derivation of the crossing relations using the substitution rule as a guide. R.A. Morrow, 706.

11.90 Other topics in general field and particle theory

Graphical solutions of renormalization group equations. C.S. Lam and G.C. Marleau, 1699.

12.00 SPECIFIC THEORIES AND INTERACTION MODELS: PARTICLE SYSTEMATICS

12.20 Electromagnetic and unified gauge fields

Energy of a spin- $\frac{1}{2}$ particle in a constant coloured magnetic field. G. McKeon, 994.
 Graphical solutions of renormalization group equations. C.S. Lam and G.C. Marleau, 1699.

12.20D Specific calculations and limits of quantum electrodynamics

On an application of Theiss' regularization procedure in quantum electrodynamics. G. McKeon, 1749.

12.30 Models of weak interactions

(Anti)-neutrino-deuteron scattering and the structure of the weak hadronic neutral currents. M. Rahman, 2201.

12.40 Models of strong interactions

A study of the sphericity in inelastic hadronic reactions at 24 GeV/c with the help of 'principal axis' variables. D.C. Ghosh, S.C. Naha, and T. Roy, 864.

12.40Q Potential models

The linear potential eigenenergy equation. I: the coefficients $K_{\mu}(3P')$. A.F. Antippa and T. Nguyen Ky, 417.

13.00 SPECIFIC REACTIONS AND PHENOMENOLOGY**13.15 Neutrino interactions**

(Anti)-neutrino-deuteron scattering and the structure of the weak hadronic neutral currents. M. Rahman, 2201.

13.40 Electromagnetic processes and properties of hadrons

On the theory of positron drift in a uniform electric field. D.A.L. Paul and J.-S. Tsai, 1667.

The Muskhelishvili-Omnès equation and final state interactions. A.N. Kamal, 1815.

13.40D Electromagnetic mass differences

Scaling violations and the proton-neutron mass difference. E.M. Haacke and J.W. Moffat, 1565.

13.60 Photon and charged-lepton interactions with hadrons**13.60H Total and inclusive cross sections**

Broken $SU(6)_W$ analysis of electroproduction. C. Avilez and G. Cocho, 1141.

13.60K Meson production

Weak interaction effects in low energy pion photoproduction. R.M. Woloshyn, 809.

The Muskhelishvili-Omnès equation and final state interactions. A.N. Kamal, 1815.

13.60M Meson-resonance production

The Muskhelishvili-Omnès equation and final state interactions. A.N. Kamal, 1815.

13.60P Baryon and baryon resonance production

On the constraints that duality imposes on the broken $SU(6)_W$ structure of the baryonic resonance photocouplings. C. Avilez and G. Cocho, 815.

13.75 Hadron-induced low- and intermediate-energy reactions and scattering, energy ≤ 10 GeV**13.75C Nucleon-nucleon interactions, including antinucleon, deuteron, etc., energy ≤ 10 GeV**

pp scattering in 1D_2 state. B.J. Edwards and A.N. Kamal, 659.

13.75G Pion-baryon interactions (energy ≤ 10 GeV)

$\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdicker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

13.85 Hadron-induced high- and super-high-energy interactions, (energy > 10 GeV)

Relation between the primary proton energy and the produced pion energy in p-p inelastic interactions in terms of the Landau parameter. R.K. Roychoudhury and D.P. Bhattacharyya, 586.

Mean charged hadron multiplicities in high energy collisions—a new approach. D.C. Ghosh, S.C. Naha, and T. Roy, 1131.

Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.

13.85H Inelastic scattering, many-particle final states (energy > 10 GeV)

Charged particle multiplicity in π^- -nucleus interactions at 50 GeV/c in nuclear emulsion. A. Mozumder, D.P. Goyal, P.K. Sengupta, and S. Singh, 1672.

13.90 Other topics in specific reactions and phenomenology of elementary particles

Validity of the latest interpretation on primary energy estimation and dependence of $\langle N_h \rangle$ on laboratory momentum. B.K. Bandyopadhyay and B.K. Betal, 182.

Weak interaction effects in low energy pion photoproduction. R.M. Woloshyn, 809.

20.00 NUCLEAR PHYSICS**21.00 NUCLEAR STRUCTURE****21.10 General and average properties of nuclei; properties of nuclear energy levels****21.10D Binding energy and masses**

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Structure and form factor models in the mass three system. J.J. Bevelacqua, 404.

21.10H Spin, parity, and isobaric spin

Assignment of $J\pi = 1^-$ for the 5.048 MeV level of ^{16}N . G. Pantis and D.W.L. Sprung, 132.

21.10J Spectroscopic factors

Single-proton states in ^{155}Eu . D.G. Burke, G. Løvholden, O. Straume, E.R. Flynn, and J.W. Sunier, 271.

21.10K Electromagnetic moments

Microscopic wave functions for 0^+ states in the ^4He system. J.J. Bevelacqua, 1478.

21.40 Few-nucleon systems

Structure and form factor models in the mass three system. J.J. Bevelacqua, 404.

Microscopic wave functions for 0^+ states in the ^4He system. J.J. Bevelacqua, 1478.

Shell-model calculations in the ^4He system. J.J. Bevelacqua, 1833.

21.60 Nuclear-structure models and methods

Generalized Moshinsky bracket recurrence relations. J.J. Bevelacqua, 1136.

Shell-model calculations in the ^4He system. J.J. Bevelacqua, 1833.

The harmonic oscillator approximation to the density matrix. R.K. Bhaduri and L.F. Zaifman, 1990.

21.60C Shell model

Microscopic wave functions for 0^+ states in the ^4He system. J.J. Bevelacqua, 1478.

21.65 Nuclear matter

The hydrodynamical approximations in the cold nuclear matter. R. Padjen, 99.

21.90 Other topics in nuclear structure

Search for isomers in nuclei near $N = 50$. P. Taras, B. Haas, J.C. Merdinger, and J. Styczen, 1775.

23.00 NUCLEAR DECAY AND RADIOACTIVITY

Level structure of ^{105}Ag . M.K. Dewanjee, O.B. Okon, H. Bakhru, and I.L. Preiss, 1495.

23.20 Electromagnetic transitions

A study of the $^{34}\text{S}(\alpha, \gamma)^{38}\text{Ar}$ reaction. K.N. Sinha, A.G. Hwang, H.-B. Mak, and H.C. Evans, 781.

Coulomb excitation of low-energy levels in ^{48}Sc . V.U. Patil and R.G. Kulkarni, 1196.

Investigation of level properties of ^{139}La . R.G. Kulkarni and K. Andhradev, 1940.

23.90 Other topics in nuclear decay and radioactivity

Calcul d'inerties collectives hydrodynamiques en fission nucléaire. M. Fontaine et P. Amiot, 793.

K-shell autoionization in the β^- decay of ^{64}Cu . J. Dobrinčić, A. Ljubičić, and Y. Isozumi, 1489.

24.00 NUCLEAR REACTIONS AND SCATTERING: GENERAL**24.10 Nuclear reaction and scattering models and methods**

Off-shell resonances in coupled channel problems. G. Pantis, 801.

Collective phenomena in the one-dimensional three-particle model of high-energy potential scattering. V.I. Inozemtsev, 974.

Form factor effects in the $^{18}\text{O}(p, t)^{16}\text{O}$ reaction. J.J. Bevelacqua and S.V. Prewett, 1484.

Exact and Glauber amplitudes in multi-channel scattering. W. van Dijk and M. Razavy, 1952.

24.10H Optical and diffraction models

Erratum: Optical model analysis of $p + ^4\text{He}$ elastic scattering at intermediate energies. S.W.-L. Leung and H.S. Sherif, 601.

24.30 Resonance reactions and scattering

$g_{9/2}$ isobaric analogue resonances in $^{64,66}\text{Zn}(p, \gamma)$ reactions. C. Rangacharyulu, I.M. Szöghy, C. St-Pierre, and K. Ramavataram, 733.

Off-shell resonances in coupled channel problems. G. Pantis, 801.

24.50 Direct reactions and scattering

Form factor effects in the $^{18}\text{O}(p, t)^{16}\text{O}$ reaction. J.J. Bevelacqua and S.V. Prewett, 1484.

24.70 Polarization in reactions and scattering

Use of $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ analyzing power. M.A.M. Shahabuddin, L. Buja-Bijunas, W.R. Stott, and J.C. Waddington, 505.

Elastic and inelastic scattering of 40 MeV polarized protons from ^{90}Zr and ^{92}Zr . R. de Swiniarski, D.-L. Pham, G. Bagieu, and H.V. Geramb, 540.

Possible structure dependence in the $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ reaction. M.A.M. Shahabuddin and J.C. Waddington, 1949.

25.00 NUCLEAR REACTIONS AND SCATTERING: SPECIFIC REACTIONS

Angular correlation of two-photon positron annihilation in hydrogen gas. J.W. Darewych, 1027.

25.20 Photonuclear reactions and photon scattering

The reaction $^{15}\text{N}(\gamma, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.

25.40 Nucleon-induced reactions and scattering

Assignment of $J^\pi = 1^-$ for the 5.048 MeV level of ^{16}N . G. Pantis and D.W.L. Sprung, 132.

Cross section for the $^{26}\text{Mg}(p,n)^{26}\text{Al}(7.3 \times 10^5 \text{ yr})$ and

$^{26}\text{Mg}(p,n)^{26m}\text{Al}(6.35 \text{ s})$ reactions. J.D. King and C.W. Cheng, 286.

Empirical formulas for 14 MeV neutron induced (n, α) cross sections. H.L. Pai and D.G. Andrews, 703.

Erratum: Cross sections for the $^{26}\text{Mg}(p,n)^{26}\text{Al}(7.3 \times 10^5 \text{ yr})$ and

$^{26}\text{Mg}(p,n)^{26m}\text{Al}(6.35 \text{ s})$ reactions. J.D. King and C.W. Cheng, 1063.

Form factor effects in the $^{18}\text{O}(p,t)^{16}\text{O}$ reaction. J.J. Bevelacqua and S.V. Prewett, 1484.

25.50 ^2H - and ^3H -induced reactions and scattering

Polarization in deuteron stripping on ^{12}C at low energy. M. Sieminski, M. Sosnowski, and P. Zupranski, 292.

25.60 ^3He - and ^4He -induced reactions and scattering

Structure and form factor models in the mass three system. J.J. Bevelacqua, 404.

25.80 Meson- and hyperon-induced reactions and scattering

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.

Erratum: The strong interaction shift in pionic ^3He . A.W. Thomas, 2052.

27.00 PROPERTIES OF SPECIFIC NUCLEI LISTED BY MASS RANGES**27.40 $39 \leq A \leq 58$**

The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

27.60 $90 \leq A \leq 149$

Decay of ^{122}In . H.C. Cheung, H. Huang, and J.K.P. Lee, 460.

Study of high spin states in ^{149}Tb observed by the $(^{10}\text{B}, 3n)$ reaction. N.C. Singhal, M.W. Johns, and J.V. Thompson, 1959.

27.70 $150 \leq A \leq 189$

Single-proton states in ^{155}Eu . D.G. Burke, G. Løvvhøiden, O. Straume, E.R. Flynn, and J.W. Senier, 271.

Levels in ^{148}Tb excited by the $(^6\text{Li}, xn)$ and $(^{10}\text{B}, xn)$ reactions. N.C. Singhal and M.W. Johns, 358.

The nuclear structure of ^{166}Er . J.D. Panar and D.G. Burke, 1999.

29.00 EXPERIMENTAL METHODS AND INSTRUMENTATION FOR ELEMENTARY-PARTICLE AND NUCLEAR PHYSICS**29.90 Other topics in high-energy and nuclear experimental methods and instrumentation**

Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.

30.00 ATOMIC AND MOLECULAR PHYSICS

Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.

31.00 ELECTRONIC STRUCTURE OF ATOMS AND MOLECULES: THEORY**31.10 General theory of electronic structure, electronic transitions, and chemical binding**

On the relations between nonrelativistic binding energies of a neutral atom and isoelectronic ions. C.S. Lai, 1884.

One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.

31.15 General mathematical and computational developments

A remark on Moore's new method of obtaining approximate solutions of the Dirac equation. Y. Tomishima, 2114.

31.20 Specific calculations and results

New asymptotic expression for the average lifetime of hydrogenic levels. P.A. Millette and Y.P. Varshni, 334.

An improved value for the electron affinity of the negative hydrogen ion. L.R. Scherk, 558.

A theoretical study of the $B^2\Sigma^+ - X^2\Sigma^+$ band system in MgH and MgD . M.L. Sink and A.D. Bandrauk, 1178.

31.20D Complete *ab initio* calculations (exact or nearly exact calculations on small species)

Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.

31.20L Statistical model calculations (Thomas-Fermi and Thomas-Fermi-Dirac models)

Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.

31.20T Electron correlation and CI calculations

Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.

31.50 Excited states

Metastable yield of argon between 23 and 37 eV by electron impact. P. Marchand and J. Cardinal, 1624.

31.70 Effects of molecular interactions on electronic structure

Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.

31.90 Other topics in the theory of the electronic structure of atoms and molecules

Metastable yield of argon between 23 and 37 eV by electron impact. P. Marchand and J. Cardinal, 1624.

32.00 ATOMIC SPECTRA AND INTERACTIONS WITH PHOTONS

$4d^9 5s-4d^9 5p$ transitions in Sb VI and Te VII. Th.A.M. van Kleef and Y.N. Joshi, 1073.

32.20 Atomic spectra grouped by wavelength ranges

Rotational analysis of the $A^2\Sigma^+ - X^2\Sigma^+$ transition of $^{27}\text{Al}^{80}\text{Se}$. H. Lavendy and B. Pinchemel, 607.

32.20B Radiofrequency, microwave, and infrared spectra

The molecular beam electric resonance spectrum of OPF_3 . W.L. Meerts, I. Ozier, and A. Dymanus, 1163.

32.20J Visible and ultraviolet spectra

Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.

The $4d^9 5d$ and $4d^9 6s$ configurations in Sb VI and the $4d^9 5d$ configuration in Te VII. Y.N. Joshi and Th.A.M. van Kleef, 1982.

Doppler-free two-photon absorption spectrum of rubidium. B.P. Stoicheff and E. Weinberger, 2143.

32.50 Fluorescence, phosphorescence

A propagator approach for the calculation on nonlinear susceptibilities. H.R. Zaidi, 1518.

Inelastic collisions and fluorescence in gases. H.R. Zaidi, 1530.

32.70 Spectral line shapes and intensities

Relativistic oscillator strengths for $np^2 \rightarrow np(n+1)s$ transition array of SnI and PbI spectra in *jj* and intermediate coupling. J. Migdalek, 147.

Lifetime of the $5p^2\ ^1D_2$ level of neutral strontium. F.M. Kelly and M.S. Mathur, 657.

Density dependence of the Hanle effect of the $3s4p\ ^1P_1^0$ level of neutral magnesium. F.M. Kelly and M.S. Mathur, 838.

Effect of external static perturbation on radiative decay of a two-level atom. R.P. Srivastava, 1157.

A propagator approach for the calculation on nonlinear susceptibilities. H.R. Zaidi, 1518.

Inelastic collisions and fluorescence in gases. H.R. Zaidi, 1530.

Stark broadening of He I 3965 Å. P.J. Pilon and A.J. Barnard, 1553.

32.80 Photon interactions with atoms

Photoelectric cross sections derived from the total absorption cross sections in the energy range 5-130 keV. K.S. Puttaswamy, R. Gowda, and B. Sanjeevaiah, 92.

Exchanged momentum between moving atoms and a surface wave: theory and experiment. S. Huard, 612.

32.80K Multiphoton processes

Multiphoton ionization of Li at the ruby laser wavelength. G. Wagner and N.R. Isenor, 1770.

Doppler-free two-photon absorption spectrum of rubidium. B.P. Stoicheff and E. Weinberger, 2143.

32.90 Other topics in atomic spectra and interactions with photons

Semiempirical prediction of atomic energy levels. S. Fraga, 836.

33.00 MOLECULAR SPECTRA AND INTERACTIONS WITH PHOTONS**33.10 Calculation of molecular spectra**

Tensorial calculations in molecular spectroscopy. J.-L. Féménias, 2030.

33.20 Molecular spectra grouped by wavelength ranges

33.20B Radio-frequency and microwave spectra

The distortion moment spectrum of GeH_4 : the microwave Q branch. R.H. Kagann, I. Ozier, G.A. McRae, and M.C.L. Gerry, 593.

The microwave spectrum of the OH $X^2\Pi$ radical in the ground and vibrationally-excited ($v \leq 6$) levels. J.A. Coxon, K.V.L.N. Sastry, J.A. Austin, and D.H. Levy, 619.

33.20E Infrared spectra

High resolution laser Stark and infrared-radiofrequency double resonance spectroscopy of H_2O at 6 μm . M. Herman, J.W.C. Johns, and A.R.W. McKellar, 397.

Analyse comparative à densité variable du profil de la bande ν_3 de CH_4 dans SF_6 , Ar et CCl_4 . J. Vincent-Geisse, J. Soussen-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.

Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.

A note on some integrals useful in collision induced absorption. P. Gibbs, J.L. Hunt, and J.D. Poll, 981.

High temperature absorption on the $P(26)$ – $P(32)$ CO_2 laser transitions. A.M. Robinson, 1896.

Measurement and analysis of the ν_2 and ν_4 infrared bands of CD_4 . W.A. Kreiner and A.G. Robiette, 1969.

Symmetry in $(\text{H}_2)_2$, $(\text{D}_2)_2$, $(\text{HD})_2$ and H_2 – D_2 Van der Waals complexes. P.R. Bunker, 2099.

Detection of the FO radical by CO_2 laser magnetic resonance. A.R.W. McKellar, 2106.

33.20F Raman and Rayleigh spectra

The vibrational Raman spectrum of compressed solid hydrogen. E.J. Allin and S.M. Till, 442.

High resolution rotation-vibration Raman spectra of benzene. III. The spectrum C_6D_6 . A.B. Hollinger, H.L. Welsh, and K.S. Jammu, 767.

33.20K Visible spectra

Rotational analysis of four bands of the $\gamma'(B^3\Pi - X^3\Delta)$ system of TiO . W.H. Hocking, M.C.L. Gerry, and A.J. Merer, 54.

Vibrational analysis of the $A^2\Pi - X^2\Sigma$ and $B^2\Sigma - X^2\Sigma$ transitions of YS and rotational analysis of the $B-X(0,0)$ band. R. Stringat, B. Fenot, and J-L. Féménias, 300.

Rotational analysis of the 6480 Å absorption of NO_3 . J.C.D. Brand, K.J. Cross, and A.R. Hoy, 428.

Structure and analysis of the $B-X$ band system of GaO . B.R. Yadav, S.B. Rai, and D.K. Rai, 496.

The vibrational frequencies of HPO . M. Larzilliere, N. Damany, and Lam Thanh My, 539.

The $A-X$ system of the I_2 molecule. R.A. Ashby, 698.

The electronic absorption spectrum of NDH . D.A. Ramsay and F.D. Wayne, 761.

The $A-X$ system of the CuI molecule. G.P. Mishra, S.B. Rai, and K.N. Upadhyay, 824.

The $B^1\Sigma^+ - X^3\Sigma^-$ band system of the PBr molecule. R. Colin, 1051.

33.20L Ultraviolet spectra

Structure and analysis of the $B-X$ band system of GaO . B.R. Yadav, S.B. Rai, and D.K. Rai, 496.

The magnetic rotation spectrum of formaldehyde: singlet-triplet perturbations in the 4^1 and 4^3 levels of the \tilde{A}^1A_2 state of H_2CO . D.A. Ramsay and S.M. Till, 1224.

Rotational analysis of the $C^2\Sigma^- - X^2\Pi$ system of ^{35}ClO : an application of the method of merging to microwave, infrared, and optical data. J.A. Coxon, 1538.

The emission spectrum of the CO_2^+ ion: rovibronic analysis of the $\tilde{A}^2\Pi_u - \tilde{X}^2\Pi_g$ band system. D. Gauyacq, C. Larcher, and J. Rostas, 1634.

High resolution studies of the $\tilde{A}^1A_2 - \tilde{X}^1A_1$ system of ^{13}C -formaldehyde. F.W. Birss, R.M. Gordon, D.A. Ramsay, and S.M. Till, 1676.

33.20N Vacuum ultraviolet spectra

Absorption spectrum of the P^{18}O molecule. $^2\Sigma$ and $^2\Delta - X^2\Pi$ transitions. Perturbation effects on the intensity of lines in the $E^2\Delta - X^2\Pi$ transition. J.C. Prudhomme, T.A. Ngo, and B. Coquart, 336.

Absorption spectrum of the H_2S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.

The electronic spectra of HCl and HF . A.E. Douglas and F.R. Greening, 1650.

Structure and analysis of the $B-X$ band system of GaO . B.R. Yadav, S.B. Rai, and D.K. Rai, 496.

33.25 Nuclear magnetic resonance and relaxation; nuclear quadrupole resonance (NQR)

Proton spin relaxation spectrum of hydrogen gas at 77.5 K. R.L. Armstrong and W. Kalechstein, 841.

33.40 Mössbauer spectra

The determination of spin arrangements in magnetic materials by means of Mössbauer spectroscopy using polarized γ -rays. J.M. Daniels, 263.

33.50 Fluorescence, phosphorescence; radiationless transitions (intersystem crossing, internal conversion)

Fluorescence decay rates of $\text{X}_2\text{UO}_2\text{Cl}_4$, $\text{X} = \text{Cs, Rb, and K}$. A.F. Leung and K.K. Tsang, 330.

Laser fluorescence and high vibrational levels of $^{15}\text{NO}_2$. J.C.D. Brand, P.-H. Chiu, and A.R. Hoy, 828.

Passive laser pulse compression in a fluorescent dye medium. D. Faubert and S.L. Chin, 1359.
 Inelastic collisions and fluorescence in gases. H.R. Zaidi, 1530.
 Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.
 Chemiluminescence from oxidation of inorganic hydrides; spectrum of TeF. D.E. Newlin, G.W. Stewart, and J.L. Gole, 2217.

33.60 Zeeman and Stark effects

High resolution laser Stark and infrared-radiofrequency double resonance spectroscopy of H₂O at 6 μ m. M. Herman, J.W.C. Johns, and A.R.W. McKellar, 397.
 Analysis of the 118.6 μ m laser magnetic resonance spectra of PH, $X^3\Sigma^-$ and $a^1\Delta$. P.B. Davies, D.K. Russell, D.R. Smith, and B.A. Thrush, 522.
 The magnetic rotation spectrum of formaldehyde: singlet-triplet perturbations in the 4¹ and 4³ levels of the \bar{A}^1A_2 state of H₂CO. D.A. Ramsay and S.M. Till, 1224.
 Detection of the FO radical by CO₂ laser magnetic resonance. A.R.W. McKellar, 2106.

33.70 Intensities and shapes of molecular spectral lines and bands

Analyse comparative à densité variable du profil de la bande ν_3 de CH₄ dans SF₆, Ar et CCl₄. J. Vincent-Geisse, J. Soussens-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.
 On nuclear spin statistics in rotational transition intensities in tetrahedral AB₄ molecules. A. Rosenberg and J. Susskind, 1081.
 A theoretical study of the $B^2\Sigma^+ - X^2\Sigma^+$ band system in MgH and MgD. M.L. Sink and A.D. Bandrauk, 1178.
 Inelastic collisions and fluorescence in gases. H.R. Zaidi, 1530.

33.80 Photon interactions with molecules

33.80B Level crossing and optical pumping

High-dispersion polarization-labelled spectrum of I₂. J.C.D. Brand, K.J. Cross, and R.J. Hayward, 1455.

33.80G Diffuse spectra: predissociation, photodissociation

Absorption spectrum of the P¹⁸O molecule. $^2\Sigma$ and $^2\Delta - X^2\Pi$ transitions. Perturbation effects on the intensity of lines in the $E^2\Delta - X^2\Pi$ transition. J.C. Prudhomme, T.A. Ngo, and B. Coquart, 336.

33.90 Other topics in molecular spectra and interactions with photons

Détermination des éléments de matrice d'un oscillateur anharmonique: utilisation des relations de commutation dans le cas particulier d'un potentiel de Dunham développé jusqu'au sixième ordre. P. Niay, C. Coquant et P. Bernage, 572.
 Dependence of fluorescence from laser irradiated SiF₄ on the CO₂ laser wavelength. V.E. Merchant, 1779.
 Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.

34.00 ATOMIC AND MOLECULAR COLLISION PROCESSES AND INTERACTIONS

Monte Carlo test of the *T*-expansion approach to range and depth calculations at low energies. B.M. Latta, 529.

34.10 General theories and models

Study of molecular collisions using a new interpolation scheme. G.K. Johri and S.C. Mehrotra, 69.

34.50 Inelastic scattering of atoms and molecules

Cross section for the excitation of helium by protons. S.P. Ojha and P. Tiwari, 1174.
 Shapes of optical emission lines from atoms excited by fast ion impact. II. Initial experimental results. F.J. Morgan, C.H. Dugan, and R.P. Lowe, 1934.

34.50H Electronic excitation and ionization

Beam-foil lifetime measurements for some $2p^3\ nI$ terms of singly-ionized fluorine. E.H. Pinnington, R.N. Gosselin, D.J.G. Irwin, and J.A. O'Neill, 1046.

34.70 Charge transfer

Search for long-lived states of the heavier rare gas negative ions. B. Hird and S.P. Ali, 867.
 Single electron capture by N₁²⁺ in rare gas targets between 60 keV and 200 keV. B. Hird, H.C. Suk, and S.P. Ali, 2078.

34.80 Electron scattering

Laser induced one-photon transitions between two short-lived negative ion states. C. Jung and H. Krüger, 1792.

34.80B Elastic scattering of electrons by atoms and molecules

An experimental investigation of small angle photon elastic scattering. N. Ramanathan, T.J. Kennett, and W.V. Prestwich, 343.

34.80D Atomic excitation and ionization by electron impact

Electron - hydrogen atom collision in the presence of a circularly polarized laser field. H.G.P. Lins de Barros and H.S. Brandt, 1886.

34.90 Other topics in atomic and molecular collision processes and interactions

Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.

Disorientation of $4^2P_{1/2}$ potassium atoms, induced in resonant collisions. P. Skalinski and L. Krause, 2222.

35.00 EXPERIMENTALLY DERIVED INFORMATION ON ATOMS AND MOLECULES; INSTRUMENTATION AND TECHNIQUES**35.10 Atoms**

Doppler-free two-photon absorption spectrum of rubidium. B.P. Stoicheff and E. Weinberger, 2143.

35.20 Molecules**35.20P Rotation, vibration, and vibration-rotation constants**

Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.

High resolution rotation-vibration Raman spectra of benzene. III. The spectrum C_6D_6 . A.B. Hollinger, H.L. Welsh, and K.S. Jammu, 767.

Laser fluorescence and high vibrational levels of $^{15}NO_2$. J.C.D. Brand, P.-H. Chiu, and A.R. Hoy, 828.

Rotational analysis of the $C^2\Sigma^- \leftarrow X^2\Pi$ system of ^{35}ClO : an application of the method of merging to microwave, infrared, and optical data. J.A. Coxon, 1538.

Detection of the FO radical by CO_2 laser magnetic resonance. A.R.W. McKellar, 2106.

35.20S Hyperfine- and fine-structure constants

Detection of the FO radical by CO_2 laser magnetic resonance. A.R.W. McKellar, 2106.

36.00 STUDIES OF SPECIAL ATOMS AND MOLECULES**36.10 Exotic atoms and molecules (containing mesons, muons, and other abnormal particles)**

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

40.00 CLASSICAL AREAS OF PHENOMENOLOGY**41.00 ELECTRICITY AND MAGNETISM: FIELDS AND CHARGED PARTICLES****41.10 Classical electromagnetism**

Optique bidimensionnelle en couche mince. D. Vincent et J.W.Y. Lit, 45.

Helicon-phonon interaction for potassium. R. Idiculla and K.S. Viswanathan, 353.

Measurement of forces related to electromagnetic momentum in material media at low frequencies. D.G. Lahoz and G.M. Graham, 667.

41.10H Electromagnetic waves: theory

Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.

A note on the solvability of simultaneous Wiener-Hopf equations. R.A. Hurd, 402.

Low-frequency scattering by a slit in an impedance plane. R.A. Hurd, 1039.

Spectral theory of diffraction of electromagnetic waves by a strip in the plane interface of two semi-infinite media. J.M. van Splunter and P.M. van den Berg, 1148.

Excitation and splicing of the step-index W-fiber. M. Miyagi and G.L. Yip, 1319.

Diffraction of a cylindrical pulse by a half plane under mixed boundary conditions. A. Chakrabarti and V.V.S.S. Sastry, 1324.

41.90 Other topics in electricity and magnetism

Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.

Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.

42.00 OPTICS**42.10 Propagation and transmission in homogeneous media**

Guided optics techniques for investigation of films. W.D. Westwood and J.S. Wei, 1247.

La lévitation optique des sphères. G. Roosen, 1260.

Iterative method for treating multiple scattering in fogs. A. Zardecki and W.G. Tam, 1301.

- Disque optique en couche mince. D. Vincent et J.W.Y. Lit, 1309.
 Laser propagation statistics in the Montreal area. A. Waksberg and W.R.L. Clements, 1401.
 Displacement of a microwave beam upon transmission through a dielectric slab. L.A.A. Read and G.E. Reesor, 1409.
 Laser backscattering from turbid liquids. S.R. Pal, A.I. Carswell, and K.S. Jammu, 1414.

42.20 Propagation and transmission in inhomogeneous media

- Excitation and splicing of the step-index W-fiber. M. Miyagi and G.L. Yip, 1319.
 Optical coherence modulation by two ultrasonic waves. Y. Ohtsuka, 1420.

42.30 Optical information, image formation and analysis

- Discrimination enhancement in optical pattern recognition by using a modified matched filter. E.G. Paek and S.S. Lee, 1335.
 Apodization of aberrated pupils. L.N. Hazra, P.K. Purkait, and M. De, 1340.
 Asymptotic behavior of diffraction images. V.N. Mahajan, 1426.
 Optical flashes from double wire explosion. C.Y. Kang, M.H. Lee, and S.S. Lee, 1439.
 Light angular distribution and modulation transfer function of a fluorescent screen excited by an electron beam. G.E. Giakoumakis, C.D. Nomicos, and P.C. Euthymiou, 2190.

42.40 Holography

- Reconstruction holographique à 10.6 μm : fabrication de répliques. R. Beaulieu, R.A. Lessard, M. Blanchard et M. Cormier, 1347.
 General shifted reference holography. C.S. Vikram and K. Vedam, 1397.

42.50 Quantum optics

- Cross focusing of mixed mode operation in an extra dense plasma. V.S. Soni and V.P. Nayyar, 1118.

42.52 Masers

- Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.
 Study of the effect of light shifts and buffer gas shifts on the hyperfine transition of ^{87}Rb : influence on the long term frequency stability of the rubidium maser. J. Vanier, D.H. Nguyen, G. Busca, and M. Têtu, 1380.

42.55 Lasing processes

- Etude comparée des caractéristiques d'un laser à double décharge et d'un laser à photopréionisation à pression supra-atmosphérique. M. Blanchard, R. Tremblay, M. Cormier et R. Beaulieu, 168.
 Characterization of dye laser pumping using a high power KrF excimer laser at 248 nm. T.J. McKee and D.J. James, 1432.

42.55D CO₂ lasers

- Frequency characteristics of a miniature transversely excited CO₂ laser. P. Pace and M. Lacombe, 1350.
 Transverse profile evolution of pulses passing through TEA-CO₂ amplifiers. R. Coulombe, M. Piché, and R. Tremblay, 1356.

42.55M Lasing action in liquids and organic dyes

- Numerical analysis of short laser pulse superposition in a fluorescent dye medium. D. Faubert, S.L. Chin, M. Cormier, and M. Boloten, 160.

42.60 Laser systems and laser beam applications

- La lévitation optique des sphères. G. Roosen, 1260.

42.60F Laser beam modulation

- Passive mode-locking of a KrF excimer laser. T. Efthimiopoulos, J. Banic, and B.P. Stoicheff, 1437.

42.65 Nonlinear optics

- High-dispersion polarization-labelled spectrum of I₂. J.C.D. Brand, K.J. Cross, and R.J. Hayward, 1455.
 A propagator approach for the calculation on nonlinear susceptibilities. H.R. Zaidi, 1518.
 On the differential scattered power due to the nonlinear scattering of light for ultra strong fields. S.R. Valluri and P. Bhartia, 2132.

42.65G Photon echoes, self-induced transparency, optical saturation and related effects

- Passive laser pulse compression in a fluorescent dye medium. D. Faubert and S.L. Chin, 1359.

42.78 Optical lens and mirror systems

- Lenses for spectrographs. I. Ordinary glasses. C.L. Morbey and E.H. Richardson, 1362.
 Some features of the Canada-France-Hawaii telescope. I. Before-foci optical design. E.H. Richardson, 1365.

42.80 Optical devices, techniques and applications

- Guided optics techniques for investigation of films. W.D. Westwood and J.S. Wei, 1247.
 Ultra-fast switching of infrared radiation by laser-produced carriers in semiconductors. A.J. Alcock and P.B. Corkum, 1280.
 Passive laser pulse compression in a fluorescent dye medium. D. Faubert and S.L. Chin, 1359.

- Some features of the Canada-France-Hawaii telescope. I. Before-foci optical design. E.H. Richardson, 1365.
 A variable shear interferometer employing correlated diffusers for measuring optical transfer functions. C.P. Grover and H.M. van Driel, 1370.
 Bistable piezoelectric Fabry-Perot interferometer. J. Chrostowski and C. Delisle, 1376.
 Performance of optimum apodizers in presence of primary coma. S.C. Biswas and A. Boivin, 1388.

42.82 Integrated optics

- Optique bidimensionnelle en couche mince. D. Vincent et J.W.Y. Lit, 45.
 Disque optique en couche mince. D. Vincent et J.W.Y. Lit, 1309.

42.85 Optical testing and workshop techniques

- Fringe control techniques applied to holographic non-destructive testing (HNDT). C. Shakher and R.S. Sirohi, 2155.

42.90 Other topics in optics

- Performance of optimum apodizers in presence of primary coma. S.C. Biswas and A. Boivin, 1388.

43.00 ACOUSTICS

43.90 Other topics in acoustics

- Optical coherence modulation by two ultrasonic waves. Y. Ohtsuka, 1420.

47.00 FLUID DYNAMICS

47.25 Turbulent flows, convection, and heat transfer

47.25F Boundary layer and shear turbulence

- Features of a developing turbulent boundary layer measured in a bounded flow. J.K. Reichert and R.S. Azad, 477.

47.40 Compressible flows; shock and detonation phenomena

47.40K Supersonic and hypersonic flows

- Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.

47.55 Nonhomogeneous flows

- The surface conditions for viscous displacement in a homogeneous porous medium. T.J.T. Spanos, 1738.

47.55B Cavitation

- On the observed gauge pressure due to the action of a tension pulse on a bubble in a viscous incompressible liquid. G.J. Lastman and R.A. Wentzell, 553.

47.65 Magnetohydrodynamics and electrohydrodynamics

- Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.

50.00 FLUIDS, PLASMAS, AND ELECTRIC DISCHARGES

51.00 KINETIC AND TRANSPORT THEORY OF FLUIDS; PHYSICAL PROPERTIES OF GASES

51.90 Other topics in the physics of fluids

- The effect of a general oblique magnetic field on Rayleigh-Taylor instability. P.D. Ariel and B.D. Aggarwala, 1094.

52.00 THE PHYSICS OF PLASMAS AND ELECTRIC DISCHARGES

52.30 Plasma flow; magnetohydrodynamics

- Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.

52.35 Waves, oscillations, and instabilities in plasma

- Effects of higher order contribution and of ion temperature on ion-acoustic solitary waves. C.S. Lai, 490.
 Modulational instability of ion acoustic waves in the presence of density gradients. I.R. Durrani, G. Murtaza, and H.U. Rahman, 642.
 Parametric study of dissipative drift modes and their dynamic stabilization in a weakly ionized plasma. C. Boucher, S.Q. Mah, H.W.H. Van Andel, and J. Teichmann, 739.
 Particle aspect analysis of electromagnetic ion cyclotron instability. K.D. Misra and M.S. Tiwari, 1124.
 Effect of ion-tail formation on the resistivity of a turbulent plasma. H.C. Jain and S.R. Sharma, 1807.

Enhanced plasma losses due to collisional drift waves and their reduction by dynamic stabilization in a weakly ionized plasma. S.Q. Mah and H.W.H. Van Andel, 1890.

Effect of the third-order contribution on ion-acoustic solitary waves. C.S. Lai, 2136.

52.35R Plasma turbulence

Spectroscopic investigation of plasma turbulence. Y.S. Al-Shiraida, A. Hirose, and H.M. Skarsgard, 845.

Effect of ion-tail formation on the resistivity of a turbulent plasma. H.C. Jain and S.R. Sharma, 1807.

52.40 Plasma interactions

Cross focusing of mixed mode operation in an extra dense plasma. V.S. Soni and V.P. Nayyar, 1118.

Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.

52.40H Solid-plasma interactions

Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.

52.40K Sheaths

Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.

52.55 Plasma equilibrium and confinement

Categorization of high- β equilibria in Tokamaks of arbitrary cross section. R. Jones, 635.

Nernst-Wiencke equilibrium in linear magnetized plasmas. B. Ahlborn, 1090.

52.65 Plasma simulation

Two-dimensional hydrodynamic simulations of a laser heated gas target plasma. R.D. Milroy, C.E. Capjack, J.N. McMullin, and C.R. James, 514.

52.70 Plasma diagnostic techniques and instrumentation

The Langmuir probe measurement of flow velocity in a flame plasma. C.S. MacLachy and R. Didsbury, 381.

Stark broadening of He I 3965 Å. P.J. Pilon and A.J. Barnard, 1553.

52.80 Electric discharges

Optical flashes from double wire explosion. C.Y. Kang, M.H. Lee, and S.S. Lee, 1439.

52.90 Other topics in plasma physics and electric discharges

Manifestations et mesures de concentration de métastables dans les jets de plasma d'argon au d'hélium à pression atmosphérique dans les régions de basses températures. M. Fortin et P. Meubus, 1594.

The multi-fluid behaviors between an electrically stressed spherical cathode and spherical anode. A.-E. Hamdi, 1758.

60.00 CONDENSED MATTER: STRUCTURE, THERMAL AND MECHANICAL PROPERTIES

61.00 STRUCTURE OF LIQUIDS AND SOLIDS; CRYSTALLOGRAPHY

61.16 Other determination of structures

The determination of spin arrangements in magnetic materials by means of Mössbauer spectroscopy using polarized γ -rays. J.M. Daniels, 263.

61.20 Classical, semiclassical, and quantum theories of liquid structure

Generalized mean field theory of molecular liquids. II. Thermodynamic properties. C.G. Gray and R.L. Henderson, 1605.

The exact fourth and fifth virial coefficients of an inverse-6 potential. D.S. Hall, 2194.

61.40 Amorphous and polymeric materials

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

61.70 Defects in crystals

New trapped-electron and trapped-hole centres in X-rayed KCl:Ti⁺ crystals. T. Tsuboi, 1510.

61.70E Other point defects

A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He⁺ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

Lattice relaxation around tetragonal and rhombic defects in alkali halides. B.P. Clayman, 1209.

61.70Y Interaction between different crystal structure defects

A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He⁺ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

61.80 Radiation damage and other irradiation effects**61.80C X-rays**

Thermal stability of some radiation damage products in X-irradiated NaClO_3 . V.S. Sivasankar and P.W. Whippey, 128.

61.80J Ions

A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He^+ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

61.80M Channelling, blocking and energy loss of particles

A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He^+ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

62.00 MECHANICAL AND ACOUSTIC PROPERTIES OF CONDENSED MATTER**62.20 Mechanical properties of solids (related to microscopic structure)**

Elastic constants and anisotropic pair correlations in solid hydrogen and deuterium. S. Luryi and J. Van Kranendonk, 136.
Volume forces in simple metals. S.H. Taole and H.R. Glyde, 1870.

62.20D Elastic constants

Some aspects of thermal and elastic properties of yttrium. R. Ramji Rao and A. Rajput, 120.
Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.
Lattice heat capacity, third-order elastic constants, and thermal expansion of scandium. R. Ramji Rao and A. Rajput, 983.

62.65 Acoustic properties of solids

Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

63.00 LATTICE DYNAMICS AND CRYSTAL STATISTICS

Unpaired forces in the study of lattice dynamics of thorium. K.N. Awasthi and S.S. Kushwaha, 1838.

63.10 General theory

Non-central forces and normal modes of vibration in palladium. H.L. Kharoo and O.P. Gupta, 1589.
Comparison of the major force constant models for cubic systems using a self-consistency condition. R.A. Moore and J.C. Upadhyaya, 2053.

63.20 Phonons and vibrations in crystal lattices

Elastic constants and anisotropic pair correlations in solid hydrogen and deuterium. S. Luryi and J. Van Kranendonk, 136.
Renormalized interactions in solid hydrogen and analysis of the ortho-pair level structure. S. Luryi and J. Van Kranendonk, 307.
The lattice dynamics of crystalline carbon disulphide. P.J. Grout and J.W. Leech, 851.
Far-infrared dispersive-reflection measurements on NaCl, compared with calculations based on cubic and quartic anharmonicity. II. Low temperature. P.R. Staal and J.E. Eldridge, 1784.
Volume forces in simple metals. S.H. Taole and H.R. Glyde, 1870.
Comparison of the major force constant models for cubic systems using a self-consistency condition. R.A. Moore and J.C. Upadhyaya, 2053.
Lattice dynamics of sulphur dioxide using a rigid molecule model. A. Rastogi, A. Anderson, and J.W. Leech, 2120.

63.20D Phonon states and bands, normal modes, and phonon dispersion

Phonon dispersion in $\text{Co}_{0.92}\text{Fe}_{0.08}$. E.C. Svensson, B.M. Powell, A.D.B. Woods, and W.-D. Teuchert, 253.

63.20M Phonon-defect interactions

Theory of crystal-field interactions in solid hydrogen. I. Single ortho impurities in solid para-hydrogen. S. Luryi and J. Van Kranendonk, 933.

63.20P Localized modes

Lattice relaxation around tetragonal and rhombic defects in alkali halides. B.P. Clayman, 1209.

64.00 EQUATIONS OF STATE, PHASE EQUILIBRIA, AND PHASE TRANSITIONS**64.60 General studies of phase transitions**

Numerical determination of some generic nonlinear excitations in condensed matter physics. J.F. Currie and A.R. Bishop, 890.

64.70 Phase equilibria, phase transitions, and critical points of specific substances

Mean field theory of the orientational properties of ($J = 1$) hydrogen molecules on the surface of Grafoil. A.B. Harris and A.J. Berlinsky, 1852.

64.70F Liquid-vapour transitions

The critical exponent β for ethane. D. Balzarini and M. Burton, 1516.
 Stability of an inhomogeneous fluid. L. de Sobrino, 2161.

65.00 THERMAL PROPERTIES OF CONDENSED MATTER**65.40 Heat capacities of solids**

Some aspects of thermal and elastic properties of yttrium. R. Ramji Rao and A. Rajput, 120.
 Lattice heat capacity, third-order elastic constants, and thermal expansion of scandium. R. Ramji Rao and A. Rajput, 983.

65.70 Thermal expansion and thermomechanical effects

Some aspects of thermal and elastic properties of yttrium. R. Ramji Rao and A. Rajput, 120.
 Lattice heat capacity, third-order elastic constants, and thermal expansion of scandium. R. Ramji Rao and A. Rajput, 983.

66.00 TRANSPORT PROPERTIES OF CONDENSED MATTER (NONELECTRONIC)**66.30 Diffusion in solids**

On the nature of the diffusion potential. J.S. Kirkaldy, 717.
 Uphill diffusion associated with a flux of extrinsic vacancies. D.J. Young, E. Delamotte, and J.S. Kirkaldy, 722.

67.00 QUANTUM FLUIDS AND SOLIDS: LIQUID AND SOLID HELIUM**67.80 Solid helium and related quantum crystals**

Theory of crystal-field interactions in solid hydrogen. I. Single ortho impurities in solid para-hydrogen. S. Luryi and J. Van Kranendonk, 933.
 Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.

68.00 SURFACES AND INTERFACES: THIN FILMS AND WHISKERS**68.10 Fluid surfaces and fluid-fluid interfaces**

Numerical determination of some generic nonlinear excitations in condensed matter physics. J.F. Currie and A.R. Bishop, 890.

68.20 Solid surface structure

A fast method of LEED/MEED intensity calculation for the study of diatomic surfaces. N. Masud, 2196.

70.00 CONDENSED MATTER: ELECTRONIC STRUCTURE, ELECTRICAL, MAGNETIC, AND OPTICAL PROPERTIES**71.00 ELECTRON STATES****71.10 General theories and computational techniques**

One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.

71.25 Nonlocalized single-particle electronic states**71.25H Measurement of Fermi surface parameters**

Open orbits in ReO_3 . F.S. Razavi and W.R. Datars, 860.
 The effect of hydrostatic pressure on the Fermi surface of white tin. J.M. Perz and I.M. Templeton, 884.

71.25P Band structure of crystalline metals

Calculations of the spin susceptibilities and their volume dependence for Li, Na, and K. L. Wilk, A.H. MacDonald, and S.H. Vosko, 1065.

71.25R Band structure of crystalline elemental semiconductors

Determination of the dilation and vibrational contributions to the indirect energy band gap of diamond semiconductor. A. Manoogian and A. Leclerc, 1766.

71.35 Excitons and related phenomena

Binding energy of the Wannier exciton-ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.

71.38 Polarons and electron-phonon interactions

The Frölich Hamiltonian: mathematical results. III. Perturbation theory. B.M. de Dornale, 114.
 Binding energy of the Wannier exciton-ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.

71.55 Impurity and defect levels

New trapped-electron and trapped-hole centres in X-rayed KCl:Ti⁺ crystals. T. Tsuboi, 1510.
 Binding energy of the Wannier exciton - ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.

72.00 ELECTRONIC TRANSPORT IN CONDENSED MATTER**72.15 Electronic conduction in metals and alloys**

Determination of the ideal resistivity and of the deviation from Matthiessen's rule in gold below 10 K. J.F. Kos and R.J. Barton, 1579.

72.15E Electrical and thermal conduction in crystalline metals and alloys

The transport properties of rubidium, and electron-electron scattering. J.G. Cook, 871.
 Electron-electron scattering in potassium. J.G. Cook, 1216.

72.15G Galvanomagnetic and other magnetotransport effects

Open orbits in ReO₃. F.S. Razavi and W.R. Datars, 860.

72.15J Thermoelectric effects

The transport properties of rubidium, and electron-electron scattering. J.G. Cook, 871.
 Electron-electron scattering in potassium. J.G. Cook, 1216.

72.20 Conductivity phenomena in semiconductors and insulators**72.20H High-field and nonlinear effects**

Drift velocity of holes in germanium and silicon. H. Nakagawa and S. Zukotynski, 1233.

72.20P Thermoelectric effects

Electrical transport in gadolinium iron garnet (GdIG). V.R. Yadav and H.B. Lal, 1204.

72.30 High-frequency effects; plasma effects

Helicon-phonon interaction for potassium. R. Idiculla and K.S. Viswanathan, 353.

72.80 Conductivity of specific semiconductors and insulators**72.80C Elemental semiconductors**

Drift velocity of holes in germanium and silicon. H. Nakagawa and S. Zukotynski, 1233.

72.80E III-V and II-VI semiconductors

Electrical transport and band structure of GaAs. H.J. Lee, J. Basinski, L.Y. Juravel, and J.C. Woolley, 233.

72.80G Transition-metal compounds

Electrical transport in gadolinium iron garnet (GdIG). V.R. Yadav and H.B. Lal, 1204.
 Re-examination of high pressure electron transport properties of GaAs. H.J. Lee and J.C. Woolley, 1929.

73.00 ELECTRONIC STRUCTURE AND ELECTRICAL PROPERTIES OF SURFACES, INTERFACES, AND THIN FILMS**73.40 Interfaces****73.40J Metal-to-metal contacts**

Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.

74.00 SUPERCONDUCTIVITY**74.10 Occurrence, critical temperature**

Non-linear self-consistent screening applied to metallic hydrogen. M.D. Whitmore, J.P. Carbotte, and R.C. Shukla, 1185.

74.60 Type-II superconductivity**74.60G Flux pinning; fluxon-defect interactions**

Response of type II superconductors to magnetic fields varying in intensity and direction: model of nonrotating vortices; infinite slab geometry. J.P. Lorrain, M.A.R. LeBlanc, and A. Lachaine, 1458.

74.90 Other topics in superconductivity

Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.

75.00 MAGNETIC PROPERTIES AND MATERIALS

75.10 General theory and models of magnetic ordering

Possible ferromagnetism of a free-electron pair. S. Olszewski, 243.

Critical indices for spin correlation functions in ferromagnetic films. G. Gumbs and A. Griffin, 1686.

75.10D Crystal-field theory and spin Hamiltonians

Theory of crystal-field interactions in solid hydrogen. I. Single ortho impurities in solid para-hydrogen. S. Luryi and J. Van Kranendonk, 933.

75.10H Ising and other classical spin models

Extended high temperature low field expansions for the Ising model. S. McKenzie, 1239.

Real space renormalization and the honeycomb lattice. N. Jan and L.L. Moseley, 1800.

75.10J Heisenberg and other quantized localized spin models

The spin 1/2 XY model. III. Analysis of high temperature series expansions of some thermodynamic quantities in two dimensions. J. Rogiers, E.W. Grundke, and D.D. Betts, 1719.

75.40 Critical-point effects, specific heats, short-range order

Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

Critical indices for spin correlation functions in ferromagnetic films. G. Gumbs and A. Griffin, 1686.

75.50 Studies of specific magnetic materials

75.50E Antiferromagnetics

Antiferromagnetism in amorphous alloys containing rare-earth atoms. II. Monte Carlo studies. S.H. Sung, R. Harris, and M.J. Zuckermann, 107.

Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

75.50K Amorphous magnetic materials

Antiferromagnetism in amorphous alloys containing rare-earth atoms. II. Monte Carlo studies. S.H. Sung, R. Harris, and M.J. Zuckermann, 107.

75.90 Other topics in magnetic properties and materials

The spin-Peierls transition of the X-Y model in a magnetic field. C. Tannous and A. Caillé, 508.

76.00 MAGNETIC RESONANCES AND RELAXATION IN CONDENSED MATTER: MOSSBAUER EFFECT

76.60 Nuclear magnetic resonance and relaxation

Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.

76.90 Other topics in magnetic resonances and relaxation

Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.

77.00 DIELECTRIC PROPERTIES AND MATERIALS

Dielectric relaxation of some aliphatic ester molecules in solutions. M.P. Madan, 1035.

77.30 Polarization and depolarization effects

Thermal depolarization in crystals of $\text{CaF}_2:\text{Na}^+$, $\text{SrF}_2:\text{Na}^+$, and $\text{BaF}_2:\text{K}^+$. S.H. Ong and P.W.M. Jacobs, 1031.

78.00 OPTICAL PROPERTIES AND CONDENSED MATTER SPECTROSCOPY AND OTHER INTERACTIONS OF MATTER WITH PARTICLES AND RADIATION

78.20 Optical properties and materials

Optical spectra in WSe_2 . A. Anedda, E. Fortin, and F. Raga, 368.

Far-infrared dispersive-reflection measurements on NaCl, compared with calculations based on cubic and quartic anharmonicity. II. Low temperature. P.R. Staal and J.E. Eldridge, 1784.

78.20D Optical constants and parameters

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

78.30 Infrared and Raman spectra and scattering

Raman scattering from impurities in nonmetals. I. Phonon effects. H.C. Chow, 1.

Raman scattering from impurities in nonmetals. II. Anharmonic effects. H.C. Chow, 11.

The vibrational Raman spectrum of compressed solid hydrogen. E.J. Allin and S.M. Till, 442.
 Far-infrared dispersive-reflection measurements on NaCl, compared with calculations based on cubic and quartic anharmonicity; II. Low temperature. P.R. Staal and J.E. Eldridge, 1784.

78.35 Brillouin and Rayleigh scattering

Brillouin scattering studies of simple liquids: O₂, N₂, CO, CH₄. M.J. Clouter, H. Kieft, and I.E. Morgan, 2178.

78.40 Visible and ultraviolet spectra

Optical spectra in WSe₂. A. Anedda, E. Fortin, and F. Raga, 368.
 Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

78.50 Impurity and defect absorption in solids

New trapped-electron and trapped-hole centres in X-rayed KCl:Ti⁺ crystals. T. Tsuboi, 1510.
 Method of Gaussian quadrature in the calculation of optical absorption and magnetic circular dichroism spectra of s² ions in alkali halide crystals: application to KBr:In⁺. Y. Kamishina, V.S. Sivasankar, and P.W.M. Jacobs, 1614.
 The *p*-phonon processes in impurity optical spectra. R. Barrie, 1924.
 Binding energy of the Wannier exciton - ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.

78.55 Photoluminescence

Piezospectroscopic studies of phosphorus-, boron-, and lithium-doped silicon. M.L.W. Thewalt, J.A. Rostworowski, and G. Kirczenow, 1898.

78.60 Luminescence spectra and radiative recombination

78.60F Electroluminescence

Electroluminescence from single crystal Cu₂O diodes. K.T. Chee, T. Keowsim, and F.L. Weichman, 988.

78.60H Cathodoluminescence, ionoluminescence

Light angular distribution and modulation transfer function of a fluorescent screen excited by an electron beam. G.E. Giakoumakis, C.D. Nomicos, and P.C. Euthymiou, 2190.

78.60P Chemiluminescence

Chemiluminescence from oxidation of inorganic hydrides; spectrum of TeF₄. D.E. Newlin, G.W. Stewart, and J.L. Gole, 2217.

78.65 Optical properties of thin films

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.
 Guided optics techniques for investigation of films. W.D. Westwood and J.S. Wei, 1247.

78.70 Other interactions of matter with particles and radiation

78.70G Microwave and radiofrequency spectra

Renormalized interactions in solid hydrogen and analysis of the ortho-pair level structure. S. Luryi and J. Van Kranendonk, 307.

80.00 CROSS-DISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY

An analysis of steam flow in a chip refiner. M. Press and A.S. Arrott, 390.

81.00 MATERIALS SCIENCE

81.40 Treatment of materials and its effects on microstructures and properties

81.40R Electrical and magnetic properties (related to treatment conditions)

The preparation and passive annealing of Cd₃As₂ platelets. A. Rambo and M.J. Aubin, 2093.

81.40T Optical properties (related to treatment conditions)

The preparation and passive annealing of Cd₃As₂ platelets. A. Rambo and M.J. Aubin, 2093.

82.00 PHYSICAL CHEMISTRY

82.20 Chemical kinetics

82.20M Nonequilibrium kinetics

On the statistical mechanical interpretation of the translational energy dependence of rate processes. B. Shizgal and J.M. Fitzpatrick, 486.

82.20R Energy distribution and transfer, relaxation

On the statistical mechanical interpretation of the translational energy dependence of rate processes. B. Shizgal and J.M. Fitzpatrick, 486.

87.90 Other topics in physical chemistry

Dependence of fluorescence from laser irradiated SiF_4 on the CO_2 laser wavelength. V.E. Merchant, 1779.

87.00 BIOPHYSICS, MEDICAL PHYSICS, AND BIOMEDICAL ENGINEERING**87.10 General, theoretical, and mathematical biophysics**

Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.

87.20 Membrane biophysics

Squishy proteins in fluid membranes. M. Bloom, 2227.

87.32 Physiological optics, vision

Thermally induced retina injury due to high doses of optical radiation. V. Pollak, 1444.

90.00 GEOPHYSICS, ASTRONOMY AND ASTROPHYSICS**92.00 HYDROSPHERIC AND ATMOSPHERIC GEOPHYSICS****92.60 Meteorology**

Vents neutres dans la région F2. J. Clairemidi, 222.

92.60T Air quality and air pollution

Size distribution of winter continental-mountain aerosols 0.07–1.5 μm . A.W. Harrison and C.V. Mathai, 1557.

94.00 AERONOMY AND SPACE PHYSICS**94.10 Physics of the neutral atmosphere**

Characteristics of the midlatitude maximum in the O I 5577 Å airglow emission rate. L.L. Cogger and R.Khaneja, 926.
Midsummer stratospheric NO_2 at latitude 45 S. A.W. Harrison, 1110.

94.10S Aurora

Dependence of radio aurora at 398 MHz on electron density and electric field. D.R. Moorcroft, 687.

94.20 Physics of the ionosphere

Response of the mid-latitude ionosphere to solar magnetic sector crossing. G.F. Lyon and V.P. Bhatnagar, 218.
A rocket-borne radar study of aurora. P.A. Forsyth and J.A. Fulford, 1503.

94.40 Cosmic rays**94.40II Energetic solar particles and photons**

Energy spectra of secondary gamma rays at different atmospheric depths. D.P. Bhattacharyya and R.K. Roychoudhury, 582.

94.40L Composition and energy spectra

Sea level muon spectrum derived from the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 375.
Correlation between the sea level muon spectrum and the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 921.

94.80 Aerospace facilities and techniques; space research

Rocket attitude determination by a Fourier method. D.W. Green and B.G. Wilson, 728.



VOLUME 57, 1979

Author Index / Index des auteurs

Under each name are listed, in chronological order of publication, all articles in which an author has participated/
Chaque notice indique, dans l'ordre chronologique de publication, tous les articles auxquels l'auteur a participé

Acharya, R.

Callan-Symanzik and Weinberg equations: frame dependence of fixed points. R. Acharya, B.P. Nigam, and Z. Horváth, 1662.

Aggarwala, B.D.

The effect of a general oblique magnetic field on Rayleigh-Taylor instability. P.D. Ariel and B.D. Aggarwala, 1094.

Ahlborn, B.

Nernst-Wiener equilibrium in linear magnetized plasmas. B. Ahlborn, 1090.

Ahmed, S.

Relationship between equilibrium configurations of certain dynamical systems and zeros of Laguerre polynomials. S. Ahmed, 1568.

Alcock, A.J.

Ultra-fast switching of infrared radiation by laser-produced carriers in semiconductors. A.J. Alcock and P.B. Corkum, 1280.

Ali, S.P.

Search for long-lived states of the heavier rare gas negative ions. B. Hird and S.P. Ali, 867.

Ali, S.P.

Single electron capture by N_1^{2+} in rare gas targets between 60 keV and 200 keV. B. Hird, H.C. Suk, and S.P. Ali, 2078.

Allin, E.J.

The vibrational Raman spectrum of compressed solid hydrogen. E.J. Allin and S.M. Till, 442.

Al-Shiraida, Y.S.

Spectroscopic investigation of plasma turbulence. Y.S. Al-Shiraida, A. Hirose, and H.M. Skarsgard, 845.

Amiot, P.

Calcul d'inerties collectives hydrodynamiques en fission nucléaire. M. Fontaine et P. Amiot, 793.

Anderson, A.

Lattice dynamics of sulphur dioxide using a rigid molecule model. A. Rastogi, A. Anderson, and J.W. Leech, 2120.

Andhradev, K.

Investigation of level properties of ^{139}La . R.G. Kulkarni and K. Andhradev, 1940.

Andrews, D.G.

Empirical formulas for 14 MeV neutron induced (n, α) cross sections. H.L. Pai and D.G. Andrews, 703.

Andrews, H.R.

Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.

Anedda, A.

Optical spectra in WSe_2 . A. Anedda, E. Fortin, and F. Raga, 368.

Antippa, A.F.

The linear potential eigenenergy equation. I: the coefficients $K_n(3')$. A.F. Antippa and T. Nguyen Ky, 417.

Ariel, P.D.

The effect of a general oblique magnetic field on Rayleigh-Taylor instability. P.D. Ariel and B.D. Aggarwala, 1094.

Armstrong, R.L.

Proton spin relaxation spectrum of hydrogen gas at 77.5 K. R.L. Armstrong and W. Kalechstein, 841.

Arrott, A.S.

An analysis of steam flow in a chip refiner. M. Press and A.S. Arrott, 390.

Asai, J.

The reaction $^{15}\text{N}(e, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.

Ashby, R.A.

The $A-X$ system of the I_2 molecule. R.A. Ashby, 698.

Aubin, M.J.

The preparation and passive annealing of Cd_3As_2 platelets. A. Rambo and M.J. Aubin, 2093.

Auld, E.G.

$\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Austin, J.A.

The microwave spectrum of the OH $X^2\Pi$ radical in the ground and vibrationally-excited ($v \leq 6$) levels. J.A. Coxon, K.V.L.N. Sastry, J.A. Austin, and D.H. Levy, 619.

Avilez, C.

On the constraints that duality imposes on the broken $SU(6)_W$ structure of the baryonic resonance photocouplings. C. Avilez and G. Cocho, 815.

Avilez, C.

Broken $SU(6)_W$ analysis of electroproduction. C. Avilez and G. Cocho, 1141.

Awasthi, K.N.

Unpaired forces in the study of lattice dynamics of thorium. K.N. Awasthi and S.S. Kushwaha, 1838.

Axen, D.

$\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Azad, R.S.

Features of a developing turbulent boundary layer measured in a bounded flow. J.K. Reichert and R.S. Azad, 477.

Azuma, R.E.

The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

Bagieu, G.

Elastic and inelastic scattering of 40 MeV polarized protons from ^{90}Zr and ^{92}Zr . R. de Swiniarski, D.-L. Pham, G. Bagieu, and H.V. Geramb, 540.

Bakhru, H.

Level structure of ^{105}Ag . M.K. Dewanjee, O.B. Okon, H. Bakhru, and I.L. Preiss, 1495.

Balzarini, D.

The critical exponent β for ethane. D. Balzarini and M. Burton, 1516.

Bandrauk, A.D.

A theoretical study of the $B^2\Sigma^+ - X^2\Sigma^+$ band system in MgH and MgD . M.L. Sink and A.D. Bandrauk, 1178.

Bandyopadhyay, B.K.

Validity of the latest interpretation on primary energy estimation and dependence of $\langle N_h \rangle$ on laboratory momentum. B.K. Bandyopadhyay and B.K. Betal, 182.

Banic, J.

Passive mode-locking of a KrF excimer laser. T. Efthimiopoulos, J. Banic, and B.P. Stoicheff, 1437.

Barber, R.C.

Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.

Barber, R.C.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Barnard, A.J.

Stark broadening of He I 3965 Å. P.J. Pilon and A.J. Barnard, 1553.

Barnard, J.W.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Barrie, R.

The p -phonon processes in impurity optical spectra. R. Barrie, 1924.

Barton, R.J.

Determination of the ideal resistivity and of the deviation from Matthiessen's rule in gold below 10 K. J.F. Kos and R.J. Barton, 1579.

Basinski, J.

Electrical transport and band structure of GaAs. H.J. Lee, J. Basinski, L.Y. Juravel, and J.C. Woolley, 233.

Basselieck, B.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselieck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Baylis, W.E.

Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.

Beaulieu, R.

Etude comparée des caractéristiques d'un laser à double décharge et d'un laser à photopréionisation à pression supraatmosphérique. M. Blanchard, R. Tremblay, M. Cormier et R. Beaulieu, 168.

Beaulieu, R.

Reconstruction holographique à 10.6 μm : fabrication de répliques. R. Beaulieu, R.A. Lessard, M. Blanchard et M. Cormier, 1347.

Beer, G.A.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

Berka, I.

The weak neutral current: search for a 0^+ isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

Berlinsky, A.J.

Mean field theory of the orientational properties of ($J = 1$) hydrogen molecules on the surface of Grafoil. A.B. Harris and A.J. Berlinsky, 1852.

Bernage, P.

Détermination des éléments de matrice d'un oscillateur anharmonique: utilisation des relations de commutation dans le cas particulier d'un potentiel de Dunham développé jusqu'au sixième ordre. P. Niay, C. Coquant et P. Bernage, 572.

Betal, B.K.

Validity of the latest interpretation on primary energy estimation and dependence of $\langle N_h \rangle$ on laboratory momentum. B.K. Bandyopadhyay and B.K. Betal, 182.

Betts, D.D.

The spin $\frac{1}{2}$ XY model. III. Analysis of high temperature series expansions of some thermodynamic quantities in two dimensions. J. Rogers, E.W. Grundke, and D.D. Betts, 1719.

Bevelacqua, J.J.

Structure and form factor models in the mass three system. J.J. Bevelacqua, 404.

Bevelacqua, J.J.

Generalized Moshinsky bracket recurrence relations. J.J. Bevelacqua, 1136.

Bevelacqua, J.J.

Microscopic wave functions for 0^+ states in the ^4He system. J.J. Bevelacqua, 1478.

Bevelacqua, J.J.

Form factor effects in the $^{18}\text{O}(p,t)^{16}\text{O}$ reaction. J.J. Bevelacqua and S.V. Prewett, 1484.

Bevelacqua, J.J.

Shell-model calculations in the ^4He system. J.J. Bevelacqua, 1833.

Beveridge, J.

π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Bhaduri, R.K.

The harmonic oscillator approximation to the density matrix. R.K. Bhaduri and L.F. Zaifman, 1990.

Bhartia, P.

On the differential scattered power due to the nonlinear scattering of light for ultra strong fields. S.R. Valluri and P. Bhartia, 2132.

Bhatnagar, V.P.

Response of the mid-latitude ionosphere to solar magnetic sector crossing. G.F. Lyon and V.P. Bhatnagar, 218.

Bhattacharjee, A.

Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.

Bhattacharyya, D.P.

Energy spectra of secondary gamma rays at different atmospheric depths. D.P. Bhattacharyya and R.K. Roychoudhury, 582.

Bhattacharyya, D.P.

Relation between the primary proton energy and the produced pion energy in p-p inelastic interactions in terms of the Landau parameter. R.K. Roychoudhury and D.P. Bhattacharyya, 586.

Birss, F.W.

High resolution studies of the $\tilde{A}^1A_2-\tilde{X}^1A_1$ system of ^{13}C -formaldehyde. F.W. Birss, R.M. Gordon, D.A. Ramsay, and S.M. Till, 1676.

Bishop, A.R.

Numerical determination of some generic nonlinear excitations in condensed matter physics. J.F. Currie and A.R. Bishop, 890.

Biswas, S.C.

Performance of optimum apodizers in presence of primary coma. S.C. Biswas and A. Boivin, 1388.

Blackford, B.L.

Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.

- Blair, D.G.**
Density expansion of the correlation function of a hard sphere gas. D.G. Blair, N.K. Pope, and S. Ranganathan, 466.
- Blanchard, M.**
Etude comparée des caractéristiques d'un laser à double décharge et d'un laser à photopréionisation à pression supraatmosphérique. M. Blanchard, R. Tremblay, M. Cormier et R. Beaulieu, 168.
- Blanchard, M.**
Reconstruction holographique à 10.6 μm : fabrication de répliques. R. Beaulieu, R.A. Lessard, M. Blanchard et M. Cormier, 1347.
- Bloom, M.**
Squishy proteins in fluid membranes. M. Bloom, 2227.
- Boal, D.H.**
Physical interpretation of and light propagation in the nonsymmetric unified field theory. D.H. Boal and D.R. Noakes, 79.
- Boivin, A.**
Performance of optimum apodizers in presence of primary coma. S.C. Biswas and A. Boivin, 1388.
- Boloten, M.**
Numerical analysis of short laser pulse superposition in a fluorescent dye medium. D. Faubert, S.L. Chin, M. Cormier, and M. Boloten, 160.
- Boucher, C.**
Parametric study of dissipative drift modes and their dynamic stabilization in a weakly ionized plasma. C. Boucher, S.Q. Mah, H.W.H. Van Andel, and J. Teichmann, 739.
- Bouillon, G.**
Métrologie de bancs d'optique. Application au cas particulier d'un spectromètre à réseau concave disposé selon le montage de Rowland. C. Delisle, G. Bouillon et G. Tremblay, 1291.
- Brand, J.C.D.**
Rotational analysis of the 6480 Å absorption of NO_2 . J.C.D. Brand, K.J. Cross, and A.R. Hoy, 428.
- Brand, J.C.D.**
Laser fluorescence and high vibrational levels of $^{15}\text{NO}_2$. J.C.D. Brand, P.-H. Chiu, and A.R. Hoy, 828.
- Brand, J.C.D.**
High-dispersion polarization-labelled spectrum of I_2 . J.C.D. Brand, K.J. Cross, and R.J. Hayward, 1455.
- Brandi, H.S.**
Electron - hydrogen atom collision in the presence of a circularly polarized laser field. H.G.P. Lins de Barros and H.S. Brandi, 1886.
- Buge, J.P.**
Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.
- Buja-Bijunas, L.**
Use of $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ analyzing power. M.A.M. Shahabuddin, L. Buja-Bijunas, W.R. Stott, and J.C. Waddington, 505.
- Bunker, P.R.**
Symmetry in $(\text{H}_2)_2$, $(\text{D}_2)_2$, $(\text{HD})_2$ and $\text{H}_2\text{-D}_2$ Van der Waals complexes. P.R. Bunker, 2099.
- Burke, D.G.**
Single-proton states in ^{155}Eu . D.G. Burke, G. Løvholden, O. Straume, E.R. Flynn, and J.W. Sunier, 271.
- Burke, D.G.**
The nuclear structure of ^{166}Er . J.D. Panar and D.G. Burke, 1999.
- Burton, M.**
The critical exponent β for ethane. D. Balzarini and M. Burton, 1516.
- Busca, G.**
Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.
- Busca, G.**
Study of the effect of light shifts and buffer gas shifts on the hyperfine transition of ^{87}Rb : influence on the long term frequency stability of the rubidium maser. J. Vanier, D.H. Nguyen, G. Busca, and M. Têtu, 1380.
- Caillé, A.**
The spin-Peierls transition of the $X\text{-Y}$ model in a magnetic field. C. Tannous and A. Caillé, 508.
- Calkin, M.G.**
Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.
- Capjack, C.E.**
Two-dimensional hydrodynamic simulations of a laser heated gas target plasma. R.D. Milroy, C.E. Capjack, J.N. McMullin, and C.R. James, 514.
- Carbotte, J.P.**
Non-linear self-consistent screening applied to metallic hydrogen. M.D. Whitmore, J.P. Carbotte, and R.C. Shukla, 1185.
- Cardinal, J.**
Metastable yield of argon between 23 and 37 eV by electron impact. P. Marchand and J. Cardinal, 1624.

- Carswell, A.I.**
Laser backscattering from turbid liquids. S.R. Pal, A.I. Carswell, and K.S. Jammu, 1414.
- Carter, A.L.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Chakrabarti, A.**
Diffraction of a cylindrical pulse by a half plane under mixed boundary conditions. A. Chakrabarti and V.V.S.S. Sastry, 1324.
- Chakrabarti, A.K.**
Sea level muon spectrum derived from the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 375.
- Chakrabarti, A.K.**
Correlation between the sea level muon spectrum and the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 921.
- Chan, W.K.**
Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.
- Chang, J.-S.**
Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.
- Chatterjee, R.**
One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.
- Chee, K.T.**
Electroluminescence from single crystal Cu_2O diodes. K.T. Chee, T. Keowsim, and F.L. Weichman, 988.
- Cheng, C.W.**
Cross section for the $^{26}\text{Mg}(p,n)^{26}\text{Al}(7.3 \times 10^5 \text{ yr})$ and $^{26}\text{Mg}(p,n)^{26m}\text{Al}(6.35 \text{ s})$ reactions. J.D. King and C.W. Cheng, 286.
- Cheng, C.W.**
Erratum: Cross sections for the $^{26}\text{Mg}(p,n)^{26}\text{Al}(7.3 \times 10^5 \text{ yr})$ and $^{26}\text{Mg}(p,n)^{26m}\text{Al}(6.35 \text{ s})$ reactions. J.D. King and C.W. Cheng, 1063.
- Cheung, H.C.**
Decay of ^{122}In . H.C. Cheung, H. Huang, and J.K.P. Lee, 460.
- Chin, S.L.**
Numerical analysis of short laser pulse superposition in a fluorescent dye medium. D. Faubert, S.L. Chin, M. Cormier, and M. Boloten, 160.
- Chin, S.L.**
Passive laser pulse compression in a fluorescent dye medium. D. Faubert and S.L. Chin, 1359.
- Chiu, P.-H.**
Laser fluorescence and high vibrational levels of $^{15}\text{NO}_2$. J.C.D. Brand, P.-H. Chiu, and A.R. Hoy, 828.
- Chow, H.C.**
Raman scattering from impurities in nonmetals. I. Phonon effects. H.C. Chow, 1.
- Chow, H.C.**
Raman scattering from impurities in nonmetals. II. Anharmonic effects. H.C. Chow, 11.
- Chrostowski, J.**
Bistable piezoelectric Fabry-Perot interferometer. J. Chrostowski and C. Delisle, 1376.
- Chun, K.H.**
Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.
- Clairemidi, J.**
Vents neutres dans la région F2. J. Clairemidi, 222.
- Clayman, B.P.**
Lattice relaxation around tetragonal and rhombic defects in alkali halides. B.P. Clayman, 1209.
- Clements, W.R.L.**
Laser propagation statistics in the Montreal area. A. Waksberg and W.R.L. Clements, 1401.
- Clouter, M.J.**
Brillouin scattering studies of simple liquids: O_2 , N_2 , CO , CH_4 . M.J. Clouter, H. Kiefe, and I.E. Morgan, 2178.
- Cocho, G.**
On the constraints that duality imposes on the broken $SU(6)_W$ structure of the baryonic resonance photocouplings. C. Avilez and G. Cocho, 815.
- Cocho, G.**
Broken $SU(6)_W$ analysis of electroproduction. C. Avilez and G. Cocho, 1141.
- Code, R.F.**
Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.

Cogger, L.L.

Characteristics of the midlatitude maximum in the O I 5577 Å airglow emission rate. L.L. Cogger and R. Khaneja, 926.

Colin, R.

The $B^1\Sigma^+ - X^3\Sigma^-$ band system of the PBr molecule. R. Colin, 1051.

Cook, J.G.

The transport properties of rubidium, and electron-electron scattering. J.G. Cook, 871.

Cook, J.G.

Electron-electron scattering in potassium. J.G. Cook, 1216.

Cooperstock, F.I.

Local relative motion in general relativity. F.I. Cooperstock and D.W. Hobill, 2066.

Coquant, C.

Détermination des éléments de matrice d'un oscillateur anharmonique: utilisation des relations de commutation dans le cas particulier d'un potentiel de Dunham développé jusqu'au sixième ordre. P. Niay, C. Coquant et P. Bernage, 572.

Coquant, B.

Absorption spectrum of the $P^{18}O$ molecule. 2Σ and $2\Delta - X^2\Pi$ transitions. Perturbation effects on the intensity of lines in the $E^2\Delta - X^2\Pi$ transition. J.C. Prudhomme, T.A. Ngo, and B. Coquant, 336.

Corkum, P.B.

Ultra-fast switching of infrared radiation by laser-produced carriers in semiconductors. A.J. Alcock and P.B. Corkum, 1280.

Cormier, M.

Numerical analysis of short laser pulse superposition in a fluorescent dye medium. D. Faubert, S.L. Chin, M. Cormier, and M. Boloten, 160.

Cormier, M.

Etude comparée des caractéristiques d'un laser à double décharge et d'un laser à photopréionisation à pression supra-atmosphérique. M. Blanchard, R. Tremblay, M. Cormier et R. Beaulieu, 168.

Cormier, M.

Reconstruction holographique à 10.6 μm : fabrication de répliques. R. Beaulieu, R.A. Lessard, M. Blanchard et M. Cormier, 1347.

Coulombe, R.

Transverse profile evolution of pulses passing through TEA- CO_2 amplifiers. R. Coulombe, M. Piché, and R. Tremblay, 1356.

Cox, C.R.

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

Coxon, J.A.

The microwave spectrum of the OH $X^2\Pi$ radical in the ground and vibrationally-excited ($v \leq 6$) levels. J.A. Coxon, K.V.L.N. Sastry, J.A. Austin, and D.H. Levy, 619.

Coxon, J.A.

Rotational analysis of the $C^2\Sigma^- - X^2\Pi$ system of ^{35}ClO : an application of the method of merging to microwave, infrared, and optical data. J.A. Coxon, 1538.

Cross, K.J.

Rotational analysis of the 6480 Å absorption of NO_2 . J.C.D. Brand, K.J. Cross, and A.R. Hoy, 428.

Cross, K.J.

High-dispersion polarization-labelled spectrum of I_2 . J.C.D. Brand, K.J. Cross, and R.J. Hayward, 1455.

Currie, J.F.

Numerical determination of some generic nonlinear excitations in condensed matter physics. J.F. Currie and A.R. Bishop, 890.

Dale, R.M.

Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.

Damany, N.

The vibrational frequencies of HPO. M. Larzilliere, N. Damany, and Lam Thanh My, 539.

Daniels, J.M.

The determination of spin arrangements in magnetic materials by means of Mössbauer spectroscopy using polarized γ -rays. J.M. Daniels, 263.

Darewych, J.W.

Angular correlation of two-photon positron annihilation in hydrogen gas. J.W. Darewych, 1027.

Darling, B.T.

Erratum: Une nouvelle équation intégrale pour l'étude de la radiation scalaire dans une cavité. B.T. Darling et J.A. Imbeau, 189.

Darling, B.T.

Etude numérique de la fonction de Green scalaire d'une cavité à l'aide d'une nouvelle équation intégrale. J.A. Imbeau et B.T. Darling, 190.

Darling, B.T.

Etude numérique des modes et fréquences propres d'une cavité à l'aide de la fonction de Green. J.A. Imbeau et B.T. Darling, 208.

- Das, A.K.**
Sea level muon spectrum derived from the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 375.
- Das, A.K.**
Correlation between the sea level muon spectrum and the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 921.
- Datars, W.R.**
Open orbits in ReO_3 . F.S. Razavi and W.R. Datars, 860.
- Davies, P.B.**
Analysis of the 118.6 μm laser magnetic resonance spectra of PH , $X^3\Sigma^-$ and $a^1\Delta$. P.B. Davies, D.K. Russell, D.R. Smith, and B.A. Thrush, 522.
- De, A.K.**
Sea level muon spectrum derived from the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 375.
- De, A.K.**
Correlation between the sea level muon spectrum and the primary nucleon spectrum using the Cocconi-Koester-Perkins model. A.K. Chakrabarti, A.K. Das, and A.K. De, 921.
- De, M.**
Apodization of aberrated pupils. L.N. Hazra, P.K. Purkait, and M. De, 1340.
- de Dormale, B.M.**
The Frölich Hamiltonian: mathematical results. III. Perturbation theory. B.M. de Dormale, 114.
- Delamotte, E.**
Uphill diffusion associated with a flux of extrinsic vacancies. D.J. Young, E. Delamotte, and J.S. Kirkaldy, 722.
- Delisle, C.**
Métrologie de bancs d'optique. Application au cas particulier d'un spectromètre à réseau concave disposé selon le montage de Rowland. C. Delisle, G. Bouillon et G. Tremblay, 1291.
- Delisle, C.**
Bistable piezoelectric Fabry-Perot interferometer. J. Chrostowski and C. Delisle, 1376.
- Derenchuk, V.P.**
Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.
- Derenchuk, V.P.**
Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.
- Desaintfuscien, M.**
Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.
- de Sobrino, L.**
Stability of an inhomogeneous fluid. L. de Sobrino, 2161.
- de Swiniarski, R.**
Elastic and inelastic scattering of 40 MeV polarized protons from ^{90}Zr and ^{92}Zr . R. de Swiniarski, D.-L. Pham, G. Bagieu, and H.V. Geramb, 540.
- Dewanjee, M.K.**
Level structure of ^{105}Ag . M.K. Dewanjee, O.B. Okon, H. Bakhru, and I.L. Preiss, 1495.
- Didsbury, R.**
The Langmuir probe measurement of flow velocity in a flame plasma. C.S. MacLachy and R. Didsbury, 381.
- Dixit, M.S.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Dixit, M.S.**
The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.
- Dixon, J.M.**
One source of spin-orbit coupling in the Schrödinger representation. R. Chatterjee and J.M. Dixon, 2072.
- Dobrinić, J.**
K-shell autoionization in the β^- decay of ^{64}Cu . J. Dobrinić, A. Ljubičić, and Y. Isozumi, 1489.
- Dodson, G.W.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Douglas, A.E.**
The electronic spectra of HCl and HF. A.E. Douglas and F.R. Greening, 1650.

Duckworth, H.E.

Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.

Duckworth, H.E.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Duesdieker, C.

π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Dugan, C.H.

Shapes of optical emission lines from atoms excited by fast ion impact. II. Initial experimental results. F.J. Morgan, C.H. Dugan, and R.P. Lowe, 1934.

Durrani, I.R.

Modulational instability of ion acoustic waves in the presence of density gradients. I.R. Durrani, G. Murtaza, and H.U. Rahman, 642.

Dymanus, A.

The molecular beam electric resonance spectrum of OPF_3 . W.L. Meerts, I. Ozier, and A. Dymanus, 1163.

Ecker, K.H.

A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He^+ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

Eckhause, M.

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

Edwards, B.J.

pp scattering in 1D_2 state. B.J. Edwards and A.N. Kamal, 659.

Efthimiopoulos, T.

Passive mode-locking of a KrF excimer laser. T. Efthimiopoulos, J. Banic, and B.P. Stoicheff, 1437.

Eldridge J.E.

Far-infrared dispersive-reflection measurements on NaCl, compared with calculations based on cubic and quartic anharmonicity. II. Low temperature. P.R. Staal and J.E. Eldridge, 1784.

Ellis R.J.

Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.

Ellis R.J.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Erdman K.L.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Savev, 775.

Euthymiou, P.C.

Light angular distribution and modulation transfer function of a fluorescent screen excited by an electron beam. G.E. Giakoumakis, C.D. Nomicos, and P.C. Euthymiou, 2190.

Evans H.C.

A study of the $^{34}\text{S}(\alpha, \gamma)^{38}\text{Ar}$ reaction. K.N. Sinha, A.G. Hwang, H.-B. Mak, and H.C. Evans, 781.

Fabre G.

Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.

Faestermann, T.

The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

Faubert D.

Numerical analysis of short laser pulse superposition in a fluorescent dye medium. D. Faubert, S.L. Chin, M. Cormier, and M. Boloten, 160.

Faubert D.

Passive laser pulse compression in a fluorescent dye medium. D. Faubert and S.L. Chin, 1359.

Felawka L.

π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Féménias, J.-L.

Vibrational analysis of the $A^2\Pi-X^2\Sigma$ and $B^2\Sigma-X^2\Sigma$ transitions of YS and rotational analysis of the $B-X(0,0)$ band. R. Stringat, B. Fenot, and J.-L. Féménias, 300.

Féménias, J.-L.

Tensorial calculations in molecular spectroscopy. J.-L. Féménias, 2030.

Fenot, B.

Vibrational analysis of the $A^2\Pi-X^2\Sigma$ and $B^2\Sigma-X^2\Sigma$ transitions of YS and rotational analysis of the $B-X(0,0)$ band. R. Stringat, B. Fenot, and J.-L. Féménias, 300.

Fitzpatrick, J.M.

On the statistical mechanical interpretation of the translational energy dependence of rate processes. B. Shizgal and J.M. Fitzpatrick, 486.

Flynn, E.R.

Single-proton states in ^{155}Eu . D.G. Burke, G. Løvnhøiden, O. Straume, E.R. Flynn, and J.W. Sunier, 271.

Fontaine, M.

Calcul d'inerties collectives hydrodynamiques en fission nucléaire. M. Fontaine et P. Amiot, 793.

Forsyth, P.A.

A rocket-borne radar study of aurora. P.A. Forsyth and J.A. Fulford, 1503.

Fortin, E.

Optical spectra in WSe_2 . A. Anedda, E. Fortin, and F. Raga, 368.

Fortin, M.

Manifestations et mesures de concentration de métastables dans les jets de plasma d'argon au d'hélium à pression atmosphérique dans les régions de basses températures. M. Fortin et P. Meubus, 1594.

Fraga, S.

Semiempirical prediction of atomic energy levels. S. Fraga, 836.

Fukui, Y.

Thermalization of the ideal gas in a one-dimensional box. T. Morita and Y. Fukui, 1103.

Fulford, J.A.

A rocket-borne radar study of aurora. P.A. Forsyth and J.A. Fulford, 1503.

Gauyacq, D.

The emission spectrum of the CO_2^+ ion: rovibronic analysis of the $\tilde{A}^2\Pi_u-\tilde{X}^2\Pi_g$ band system. D. Gauiyacq, C. Larcher, and J. Rostas, 1634.

Geiger, J.S.

The weak neutral current: search for a 0^+ isomer in ^{42}Se and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

Geramb, H.V.

Elastic and inelastic scattering of 40 MeV polarized protons from ^{90}Zr and ^{92}Zr . R. de Swiniarski, D.-L. Pham, G. Bagieu, and H.V. Geramb, 540.

Gerry, M.C.L.

Rotational analysis of four bands of the $\gamma'(B^3\Pi-X^3\Delta)$ system of TiO. W.H. Hocking, M.C.L. Gerry, and A.J. Merer, 54.

Gerry, M.C.L.

The distortion moment spectrum of GeH_4 : the microwave Q branch. R.H. Kagann, I. Ozier, G.A. McRae, and M.C.L. Gerry, 593.

Ghosh, D.

Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.

Ghosh, D.C.

A study of the sphericity in inelastic hadronic reactions at 24 GeV/c with the help of 'principal axis' variables. D.C. Ghosh, S.C. Naha, and T. Roy, 864.

Ghosh, D.C.

Mean charged hadron multiplicities in high energy collisions—a new approach. D.C. Ghosh, S.C. Naha, and T. Roy, 1131.

Giakoumakis, G.E.

Light angular distribution and modulation transfer function of a fluorescent screen excited by an electron beam. G.E. Giakoumakis, C.D. Nomicos, and P.C. Euthymiou, 2190.

Gibbs, P.

A note on some integrals useful in collision induced absorption. P. Gibbs, J.L. Hunt, and J.D. Poll, 981.

Gill, D.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Giorgianni, U.

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

Glyde, H.R.

Volume forces in simple metals. S.H. Taole and H.R. Glyde, 1870.

Gole, J.L.

Chemiluminescence from oxidation of inorganic hydrides; spectrum of TeF. D.E. Newlin, G.W. Stewart, and J.L. Gole, 2217.

Gordon, R.M.

High resolution studies of the $\tilde{A}^1A_2 - \tilde{X}^1A_1$ system of ^{13}C -formaldehyde. F.W. Birss, R.M. Gordon, D.A. Ramsay, and S.M. Till, 1676.

Gosselin, R.N.

Beam-foil lifetime measurements for some $2p^3\ nI$ terms of singly-ionized fluorine. E.H. Pinnington, R.N. Gosselin, D.J.G. Irwin, and J.A. O'Neill, 1046.

Gowda, R.

Photoelectric cross sections derived from the total absorption cross sections in the energy range 5–130 keV. K.S. Puttaswamy, R. Gowda, and B. Sanjeevaiah, 92.

Goyal, D.P.

Charged particle multiplicity in π^- -nucleus interactions at 50 GeV/c in nuclear emulsion. A. Mozumder, D.P. Goyal, P.K. Sengupta, and S. Singh, 1672.

Graham, G.M.

Measurement of forces related to electromagnetic momentum in material media at low frequencies. D.G. Lahoz and G.M. Graham, 667.

Grasso, V.

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

Gray, C.G.

Generalized mean field theory of molecular liquids. II. Thermodynamic properties. C.G. Gray and R.L. Henderson, 1605.

Green, D.W.

Rocket attitude determination by a Fourier method. D.W. Green and B.G. Wilson, 728.

Greening, F.R.

The electronic spectra of HCl and HF. A.E. Douglas and F.R. Greening, 1650.

Greenspoon, S.

Finite-size effects in one-dimensional percolation: a verification of scaling theory. S. Greenspoon, 550.

Griffin, A.

Critical indices for spin correlation functions in ferromagnetic films. G. Gumbs and A. Griffin, 1686.

Grout, P.J.

The lattice dynamics of crystalline carbon disulphide. P.J. Grout and J.W. Leech, 851.

Grover, C.P.

A variable shear interferometer employing correlated diffusers for measuring optical transfer functions. C.P. Grover and H.M. van Driel, 1370.

Grundke, E.W.

The spin $\frac{1}{2}$ XY model. III. Analysis of high temperature series expansions of some thermodynamic quantities in two dimensions. J. Rogiers, E.W. Grundke, and D.D. Betts, 1719.

Gulshani, P.

Generalized Schwinger boson realizations and the oscillator-like coherent states of the rotation groups and the asymmetric top. P. Gulshani, 998.

Gumbs, G.

Critical indices for spin correlation functions in ferromagnetic films. G. Gumbs and A. Griffin, 1686.

Gupta, O.P.

Non-central forces and normal modes of vibration in palladium. H.L. Kharoo and O.P. Gupta, 1589.

Gyles, W.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Haacke, E.M.

Scaling violations and the proton-neutron mass difference. E.M. Haacke and J.W. Moffat, 1565.

Haas, B.

Search for isomers in nuclei near $N = 50$. P. Taras, B. Haas, J.C. Merdinger, and J. Styczen, 1775.

Hall, D.S.

The exact fourth and fifth virial coefficients of an inverse-6 potential. D.S. Hall, 2194.

Hamdi, A.-E.

The multi-fluid behaviors between an electrically stressed spherical cathode and spherical anode. A.-E. Hamdi, 1758.

Hardy, J.C.

The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

- Hargrove, C.K.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Harris, A.B.**
Mean field theory of the orientational properties of ($J = 1$) hydrogen molecules on the surface of Grafoil. A.B. Harris and A.J. Berlinsky, 1852.
- Harris, R.**
Antiferromagnetism in amorphous alloys containing rare-earth atoms. II. Monte Carlo studies. S.H. Sung, R. Harris, and M.J. Zuckermann, 107.
- Harrison, A.W.**
Midsummer stratospheric NO_2 at latitude 45 S. A.W. Harrison, 1110.
- Harrison, A.W.**
Size distribution of winter continental-mountain aerosols 0.07–1.5 μm . A.W. Harrison and C.V. Mathai, 1557.
- Hart, R.D.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Hayward, R.J.**
High-dispersion polarization-labelled spectrum of I_2 . J.C.D. Brand, K.J. Cross, and R.J. Hayward, 1455.
- Hazra, L.N.**
Apodization of aberrated pupils. L.N. Hazra, P.K. Purkait, and M. De, 1340.
- Henderson, R.L.**
Generalized mean field theory of molecular liquids. II. Thermodynamic properties. C.G. Gray and R.L. Henderson, 1605.
- Herman, M.**
High resolution laser Stark and infrared-radiofrequency double resonance spectroscopy of H_2O at 6 μm . M. Herman, J.W.C. Johns, and A.R.W. McKellar, 397.
- Herman, M.**
Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.
- Higinbotham, J.**
Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.
- Hincks, E.P.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Hird, B.**
Search for long-lived states of the heavier rare gas negative ions. B. Hird and S.P. Ali, 867.
- Hird, B.**
Single electron capture by N_1^{2+} in rare gas targets between 60 keV and 200 keV. B. Hird, H.C. Suk, and S.P. Ali, 2078.
- Hirose, A.**
Spectroscopic investigation of plasma turbulence. Y.S. Al-Shiraida, A. Hirose, and H.M. Skarsgard, 845.
- Hobill, D.W.**
Local relative motion in general relativity. F.I. Cooperstock and D.W. Hobill, 2066.
- Hobson, R.M.**
Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.
- Hocking, W.H.**
Rotational analysis of four bands of the $\gamma'(\text{B}^3\Pi - \text{X}^3\Delta)$ system of TiO . W.H. Hocking, M.C.L. Gerry, and A.J. Merer, 54.
- Hollinger, A.B.**
High resolution rotation-vibration Raman spectra of benzene. III. The spectrum C_6D_6 . A.B. Hollinger, H.L. Welsh, and K.S. Jammu, 767.
- Horváth, Z.**
Callan-Symanzik and Weinberg equations: frame dependence of fixed points. R. Acharya, B.P. Nigam, and Z. Horváth, 1662.
- Hoy, A.R.**
Rotational analysis of the 6480 Å absorption of NO_2 . J.C.D. Brand, K.J. Cross, and A.R. Hoy, 428.
- Hoy, A.R.**
Laser fluorescence and high vibrational levels of $^{15}\text{NO}_2$. J.C.D. Brand, P.-H. Chiu, and A.R. Hoy, 828.
- Hron, M.**
Application of finite difference methods to the inverse problem of wave propagation. M. Hron and M. Razavy, 1843.
- Huang, H.**
Decay of ^{122}In . H.C. Cheung, H. Huang, and J.K.P. Lee, 460.

- Huard, S.**
Exchanged momentum between moving atoms and a surface wave: theory and experiment. S. Huard, 612.
- Hunt, J.L.**
A note on some integrals useful in collision induced absorption. P. Gibbs, J.L. Hunt, and J.D. Poll, 981.
- Hurd, R.A.**
A note on the solvability of simultaneous Wiener-Hopf equations. R.A. Hurd, 402.
- Hurd, R.A.**
Low-frequency scattering by a slit in an impedance plane. R.A. Hurd, 1039.
- Hwang, A.G.**
A study of the $^{34}\text{S}(\alpha, \gamma)^{38}\text{Ar}$ reaction. K.N. Sinha, A.G. Hwang, H.-B. Mak, and H.C. Evans, 781.
- Idiculla, R.**
Helicon-phonon interaction for potassium. R. Idiculla and K.S. Viswanathan, 353.
- Imbeau, J.A.**
Erratum: Une nouvelle équation intégrale pour l'étude de la radiation scalaire dans une cavité. B.T. Darling et J.A. Imbeau, 189.
- Imbeau, J.A.**
Etude numérique de la fonction de Green scalaire d'une cavité à l'aide d'une nouvelle équation intégrale. J.A. Imbeau et B.T. Darling, 190.
- Imbeau, J.A.**
Etude numérique des modes et fréquences propres d'une cavité à l'aide de la fonction de Green. J.A. Imbeau et B.T. Darling, 208.
- Ingram, C.H.Q.**
 π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdicker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.
- Inozemtsev, V.I.**
Collective phenomena in the one-dimensional three-particle model of high-energy potential scattering. V.I. Inozemtsev, 974.
- Irwin, D.J.G.**
Beam-foil lifetime measurements for some $2p^3\ nI$ terms of singly-ionized fluorine. E.H. Pinnington, R.N. Gosselin, D.J.G. Irwin, and J.A. O'Neill, 1046.
- Isenor, N.R.**
Multiphoton ionization of Li at the ruby laser wavelength. G. Wagner and N.R. Isenor, 1770.
- Ishiguro, E.**
Absorption spectrum of the H_2S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.
- Isozumi, Y.**
 K -shell autoionization in the β^+ decay of ^{64}Cu . J. Dobrinić, A. Ljubičić, and Y. Isozumi, 1489.
- Jackson, K.P.**
The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.
- Jacobs, P.W.M.**
Thermal depolarization in crystals of $\text{CaF}_2:\text{Na}^+$, $\text{SrF}_2:\text{Na}^+$, and $\text{BaF}_2:\text{K}^+$. S.H. Ong and P.W.M. Jacobs, 1031.
- Jacobs, P.W.M.**
Method of Gaussian quadrature in the calculation of optical absorption and magnetic circular dichroism spectra of s^2 ions in alkali halide crystals: application to $\text{KBr}:\text{In}^+$. Y. Kamishina, V.S. Sivasankar, and P.W.M. Jacobs, 1614.
- Jain, H.C.**
Effect of ion-tail formation on the resistivity of a turbulent plasma. H.C. Jain and S.R. Sharma, 1807.
- James, C.R.**
Two-dimensional hydrodynamic simulations of a laser heated gas target plasma. R.D. Milroy, C.E. Capjack, J.N. McMullin, and C.R. James, 514.
- James, D.J.**
Characterization of dye laser pumping using a high power KrF excimer laser at 248 nm. T.J. McKee and D.J. James, 1432.
- Jammu, K.S.**
High resolution rotation-vibration Raman spectra of benzene. III. The spectrum C_6D_6 . A.B. Hollinger, H.L. Welsh, and K.S. Jammu, 767.
- Jammu, K.S.**
Laser backscattering from turbid liquids. S.R. Pal, A.I. Carswell, and K.S. Jammu, 1414.
- Jan, N.**
Real space renormalization and the honeycomb lattice. N. Jan and L.L. Moseley, 1800.
- Jericho, M.H.**
Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

- Johns, J.W.C.**
High resolution laser Stark and infrared-radiofrequency double resonance spectroscopy of H_2O at 6 μm . M. Herman, J.W.C. Johns, and A.R.W. McKellar, 397.
- Johns, J.W.C.**
Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.
- Johns, M.W.**
Levels in ^{148}Tb excited by the ($^6\text{Li}, \text{xn}$) and ($^{10}\text{B}, \text{xn}$) reactions. N.C. Singhal and M.W. Johns, 358.
- Johns, M.W.**
Study of high spin states in ^{149}Tb observed by the ($^{10}\text{B}, 3\text{n}$) reaction. N.C. Singhal, M.W. Johns, and J.V. Thompson, 1959.
- Johnson, R.R.**
 $\pi^+ - \text{p}$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.
- Johnson, R.R.**
Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.
- Johri, G.K.**
Study of molecular collisions using a new interpolation scheme. G.K. Johri and S.C. Mehrotra, 69.
- Jones, G.**
 $\pi^+ - \text{p}$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.
- Jones, R.**
Categorization of high- β equilibria in Tokamaks of arbitrary cross section. R. Jones, 635.
- Joshi, Y.N.**
 $4d^{9/5s} - 4d^{9/5p}$ transitions in Sb VI and Te VII. Th.A.M. van Kleef and Y.N. Joshi, 1073.
- Joshi, Y.N.**
The $4d^{9/5d}$ and $4d^{9/6s}$ configurations in Sb VI and the $4d^{9/5d}$ configuration in Te VII. Y.N. Joshi and Th.A.M. van Kleef, 1982.
- Jung, C.**
Laser induced one-photon transitions between two short-lived negative ion states. C. Jung and H. Krüger, 1792.
- Juravel, L.Y.**
Electrical transport and band structure of GaAs. H.J. Lee, J. Basinski, L.Y. Juravel, and J.C. Woolley, 233.
- Kagann, R.H.**
The distortion moment spectrum of GeH_4 : the microwave Q branch. R.H. Kagann, I. Ozier, G.A. McRae, and M.C.L. Gerry, 593.
- Kalechstein, W.**
Proton spin relaxation spectrum of hydrogen gas at 77.5 K. R.L. Armstrong and W. Kalechstein, 841.
- Kamal, A.N.**
pp scattering in 1D_2 state. B.J. Edwards and A.N. Kamal, 659.
- Kamal, A.N.**
The Muskhelishvili-Omnès equation and final state interactions. A.N. Kamal, 1815.
- Kamishina, Y.**
Method of Gaussian quadrature in the calculation of optical absorption and magnetic circular dichroism spectra of s^2 ions in alkali halide crystals: application to KBr:In^+ . Y. Kamishina, V.S. Sivasankar, and P.W.M. Jacobs, 1614.
- Kane, J.R.**
Muonic X-ray intensities in low- Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Kang, C.Y.**
Optical flashes from double wire explosion. C.Y. Kang, M.H. Lee, and S.S. Lee, 1439.
- Karmeshu**
Cooperative behaviour in a nonlinear model of diffusion of information. Karmeshu and R.K. Pathria, 1572.
- Kelly, F.M.**
Lifetime of the $5p^2 \ ^1D_2$ level of neutral strontium. F.M. Kelly and M.S. Mathur, 657.
- Kelly, F.M.**
Density dependence of the Hanle effect of the $3s4p \ ^1P_1^0$ level of neutral magnesium. F.M. Kelly and M.S. Mathur, 838.
- Kennett, T.J.**
An experimental investigation of small angle photon elastic scattering. N. Ramanathan, T.J. Kennett, and W.V. Prestwich, 343.
- Keowsim, T.**
Electroluminescence from single crystal Cu_2O diodes. K.T. Chee, T. Keowsim, and F.L. Weichman, 988.
- Khaneja, R.**
Characteristics of the midlatitude maximum in the O I 5577 Å airglow emission rate. L.L. Cogger and R. Khaneja, 926.
- Kharoo, H.L.**
Non-central forces and normal modes of vibration in palladium. H.L. Kharoo and O.P. Gupta, 1589.

Kiefte, H.

Brillouin scattering studies of simple liquids: O_2 , N_2 , CO , CH_4 . M.J. Clouter, H. Kiefte, and I.E. Morgan, 2178.

Kim, S.K.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

King, J.D.

Cross section for the $^{26}Mg(p,n)^{26}Al$ (7.3×10^5 yr) and $^{26}Mg(p,n)^{26m}Al$ (6.35 s) reactions. J.D. King and C.W. Cheng, 286.

King, J.D.

Erratum: Cross sections for the $^{26}Mg(p,n)^{26}Al$ (7.3×10^5 yr) and $^{26}Mg(p,n)^{26m}Al$ (6.35 s) reactions. J.D. King and C.W. Cheng, 1063.

Kirczenow, G.

Piez spectroscopic studies of phosphorus-, boron-, and lithium-doped silicon. M.L.W. Thewalt, J.A. Rostworowski, and G. Kirczenow, 1898.

Kirkaldy, J.S.

On the nature of the diffusion potential. J.S. Kirkaldy, 717.

Kirkaldy, J.S.

Uphill diffusion associated with a flux of extrinsic vacancies. D.J. Young, E. Delamotte, and J.S. Kirkaldy, 722.

Kos, J.F.

Determination of the ideal resistivity and of the deviation from Matthiessen's rule in gold below 10 K. J.F. Kos and R.J. Barton, 1579.

Kozier, K.S.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Kranyš, M.

About the equivalence of Abraham's and Minkowski's electrodynamics. M. Kranyš, 1022.

Krause, L.

Disorientation of $42P_{1/2}$ potassium atoms, induced in resonant collisions. P. Skalinski and L. Krause, 2222.

Kreiner, W.A.

Measurement and analysis of the ν_2 and ν_4 infrared bands of CD_4 . W.A. Kreiner and A.G. Robiette, 1969.

Krüger, H.

Laser induced one-photon transitions between two short-lived negative ion states. C. Jung and H. Krüger, 1792.

Kulkarni, R.G.

Coulomb excitation of low-energy levels in ^{45}Sc . V.U. Patil and R.G. Kulkarni, 1196.

Kulkarni, R.G.

Investigation of level properties of ^{139}La . R.G. Kulkarni and K. Andhradev, 1940.

Kushwaha, S.S.

Unpaired forces in the study of lattice dynamics of thorium. K.N. Awasthi and S.S. Kushwaha, 1838.

Lachaine, A.

Response of type II superconductors to magnetic fields varying in intensity and direction: model of nonrotating vortices; infinite slab geometry. J.P. Lorrain, M.A.R. LeBlanc, and A. Lachaine, 1458.

Lacombe, M.

Frequency characteristics of a miniature transversely excited CO_2 laser. P. Pace and M. Lacombe, 1350.

Lacroix, R.

Sur l'existence d'une longueur élémentaire et d'un intervalle de temps élémentaire. II. R. Lacroix, 1681.

Lahoz, D.G.

Measurement of forces related to electromagnetic momentum in material media at low frequencies. D.G. Lahoz and G.M. Graham, 667.

Lai, C.S.

Effects of higher order contribution and of ion temperature on ion-acoustic solitary waves. C.S. Lai, 490.

Lai, C.S.

On the relations between nonrelativistic binding energies of a neutral atom and isoelectronic ions. C.S. Lai, 1884.

Lai, C.S.

Effect of the third-order contribution on ion-acoustic solitary waves. C.S. Lai, 2136.

Lai, T.W.

Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.

Lal, H.B.

Electrical transport in gadolinium iron garnet (GdIG). V.R. Yadav and H.B. Lal, 1204.

Lam, C.S.

Graphical solutions of renormalization group equations. C.S. Lam and G.C. Marleau, 1699.

Lam Thanh My

The vibrational frequencies of HPO. M. Larzilliere, N. Damany, and Lam Thanh My, 539.

Larcher, C.

The emission spectrum of the CO_2^+ ion: rovibronic analysis of the $\tilde{A}^2\Pi_u - \tilde{X}^2\Pi_g$ band system. D. Gauyacq, C. Larcher, and J. Rostas, 1634.

Larzilliere, M.

The vibrational frequencies of HPO. M. Larzilliere, N. Damany, and Lam Thanh My, 539.

Lastman, G.J.

On the observed gauge pressure due to the action of a tension pulse on a bubble in a viscous incompressible liquid. G.J. Lastman and R.A. Wentzell, 553.

Latta, B.M.

Monte Carlo test of the T -expansion approach to range and depth calculations at low energies. B.M. Latta, 529.

Lavendy, H.

Rotational analysis of the $A^2\Sigma^+ - X^2\Sigma^+$ transition of $^{27}\text{Al}^{80}\text{Se}$. H. Lavendy and B. Pinchemel, 607.

LeBlanc, M.A.R.

Response of type II superconductors to magnetic fields varying in intensity and direction: model of nonrotating vortices; infinite slab geometry. J.P. Lorrain, M.A.R. LeBlanc, and A. Lachaine, 1458.

Leclerc, A.

Determination of the dilation and vibrational contributions to the indirect energy band gap of diamond semiconductor. A. Manoogian and A. Leclerc, 1766.

Lee, H.J.

Electrical transport and band structure of GaAs. H.J. Lee, J. Basinski, L.Y. Juravel, and J.C. Woolley, 233.

Lee, H.J.

Re-examination of high pressure electron transport properties of GaAs. H.J. Lee and J.C. Woolley, 1929.

Lee, J.K.P.

Decay of ^{122}In . H.C. Cheung, H. Huang, and J.K.P. Lee, 460.

Lee, M.H.

Optical flashes from double wire explosion. C.Y. Kang, M.H. Lee, and S.S. Lee, 1439.

Lee, S.S.

Discrimination enhancement in optical pattern recognition by using a modified matched filter. E.G. Paek and S.S. Lee, 1335.

Lee, S.S.

Optical flashes from double wire explosion. C.Y. Kang, M.H. Lee, and S.S. Lee, 1439.

Leech, J.W.

The lattice dynamics of crystalline carbon disulphide. P.J. Grout and J.W. Leech, 851.

Leech, J.W.

Lattice dynamics of sulphur dioxide using a rigid molecule model. A. Rastogi, A. Anderson, and J.W. Leech, 2120.

Lemire, F.

Random walk and $SU(2)$ Clebsch-Gordon coefficients. F. Lemire and J. Patera, 2050.

Lennard, W.N.

Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.

LePatourel, D.

$\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Lessard, R.A.

Reconstruction holographique à 10.6 μm : fabrication de répliques. R. Beaulieu, R.A. Lessard, M. Blanchard et M. Cormier, 1347.

Leung, A.F.

Fluorescence decay rates of $\text{X}_2\text{UO}_2\text{Cl}_4$, $\text{X} = \text{Cs, Rb, and K}$. A.F. Leung and K.K. Tsang, 330.

Leung, A.F.

Multiphonon relaxations in crystalline uranyl salts. W.K. Chan, K.H. Chun, T.W. Lai, and A.F. Leung, 2045.

Leung, M.K.

The reaction $^{15}\text{N}(c, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.

Leung, S.W.-L.

Erratum: Optical model analysis of $p + ^4\text{He}$ elastic scattering at intermediate energies. S.W.-L. Leung and H.S. Sherif, 601.

Levy, D.H.

The microwave spectrum of the OH $X^2\Pi$ radical in the ground and vibrationally-excited ($v \leq 6$) levels. J.A. Coxon, K.V.L.N. Sastry, J.A. Austin, and D.H. Levy, 619.

Lie, S.G.

Erratum: A note on the calculation of $\langle J^2 \rangle$. M. Vallieres, S.G. Lie, and D.W.L. Sprung, 601.

Lins de Barros, H.G.P.

Electron - hydrogen atom collision in the presence of a circularly polarized laser field. H.G.P. Lins de Barros and H.S. Brandi, 1886.

Lit, J.W.Y.

Optique bidimensionnelle en couche mince. D. Vincent et J.W.Y. Lit, 45.

Lit, J.W.Y.

Disque optique en couche mince. D. Vincent et J.W.Y. Lit, 1309.

Ljubičić, A.

K-shell autoionization in the β^- decay of ^{64}Cu . J. Dobrinčić, A. Ljubičić, and Y. Isozumi, 1489.

Lorrain, J.P.

Response of type II superconductors to magnetic fields varying in intensity and direction: model of nonrotating vortices; infinite slab geometry. J.P. Lorrain, M.A.R. LeBlanc, and A. Lachaine, 1458.

Løvholden, G.

Single-proton states in ^{155}Eu . D.G. Burke, G. Løvholden, O. Straume, E.R. Flynn, and J. Sunier, 271.

Lowe, R.P.

Shapes of optical emission lines from atoms excited by fast ion impact. II. Initial experimental results. F.J. Morgan, C.H. Dugan, and R.P. Lowe, 1934.

Lumsden, C.J.

Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.

Luryi, S.

Elastic constants and anisotropic pair correlations in solid hydrogen and deuterium. S. Luryi and J. Van Kranendonk, 136.

Luryi, S.

Renormalized interactions in solid hydrogen and analysis of the ortho-pair level structure. S. Luryi and J. Van Kranendonk, 307.

Luryi, S.

Products of generalized equivalent operators in angular momentum theory. S. Luryi, 327.

Luryi, S.

Theory of crystal-field interactions in solid hydrogen. I. Single ortho impurities in solid para-hydrogen. S. Luryi and J. Van Kranendonk, 933.

Lyon, G.F.

Response of the mid-latitude ionosphere to solar magnetic sector crossing. G.F. Lyon and V.P. Bhatnagar, 218.

MacDonald, A.H.

Calculations of the spin susceptibilities and their volume dependence for Li, Na, and K. L. Wilk, A.H. MacDonald, and S.H. Vosko, 1065.

Macdonald, J.A.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

MacLachy, C.S.

The Langmuir probe measurement of flow velocity in a flame plasma. C.S. MacLachy and R. Didsbury, 381.

Madan, M.P.

Dielectric relaxation of some aliphatic ester molecules in solutions. M.P. Madan, 1035.

Mah, S.Q.

Parametric study of dissipative drift modes and their dynamic stabilization in a weakly ionized plasma. C. Boucher, S.Q. Mah, H.W.H. Van Andel, and J. Teichmann, 739.

Mah, S.Q.

Enhanced plasma losses due to collisional drift waves and their reduction by dynamic stabilization in a weakly ionized plasma. S.Q. Mah and H.W.H. Van Andel, 1890.

Mahajan, V.N.

Asymptotic behavior of diffraction images. V.N. Mahajan, 1426.

Mak, H.-B.

A study of the $^{34}\text{S}(\alpha, \gamma)^{38}\text{Ar}$ reaction. K.N. Sinha, A.G. Hwang, H.-B. Mak, and H.C. Evans, 781.

Manoogian, A.

Determination of the dilation and vibrational contributions to the indirect energy band gap of diamond semiconductor. A. Manoogian and A. Leclerc, 1766.

Marchand, P.

Metastable yield of argon between 23 and 37 eV by electron impact. P. Marchand and J. Cardinal, 1624.

Marks, T.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselbeck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Marleau, G.C.

Graphical solutions of renormalization group equations. C.S. Lam and G.C. Marleau, 1699.

Mason, G.R.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

Masterson, T.G.

Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.

Masud, N.

A fast method of LEED/MEED intensity calculation for the study of diatomic surfaces. N. Masud, 2196.

Masuko, H.

Absorption spectrum of the H_2S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.

Mathai, C.V.

Size distribution of winter continental-mountain aerosols 0.07–1.5 μm . A.W. Harrison and C.V. Mathai, 1557.

Mathur, M.S.

Lifetime of the $5p^2\ ^1D_2$ level of neutral strontium. F.M. Kelly and M.S. Mathur, 657.

Mathur, M.S.

Density dependence of the Hanle effect of the $3s4p\ ^1P_1^0$ level of neutral magnesium. F.M. Kelly and M.S. Mathur, 838.

McClung, R.E.D.

Analyse comparative à densité variable du profil de la bande ν_3 de CH_4 dans SF_6 , Ar et CCl_4 . J. Vincent-Geisse, J. Soussen-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.

McKee, T.J.

Characterization of dye laser pumping using a high power KrF excimer laser at 248 nm. T.J. McKee and D.J. James, 1432.

McKellar, A.R.W.

High resolution laser Stark and infrared-radiofrequency double resonance spectroscopy of H_2O at 6 μm . M. Herman, J.W.C. Johns, and A.R.W. McKellar, 397.

McKellar, A.R.W.

Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.

McKellar, A.R.W.

Detection of the FO radical by CO_2 laser magnetic resonance. A.R.W. McKellar, 2106.

McKenzie, S.

Extended high temperature low field expansions for the Ising model. S. McKenzie, 1239.

McKeon, G.

Spontaneous symmetry breakdown induced by quantum effects. G. McKeon, 603.

McKeon, G.

Energy of a spin- $\frac{1}{2}$ particle in a constant coloured magnetic field. G. McKeon, 994.

McKeon, G.

On an application of Theiss' regularization procedure in quantum electrodynamics. G. McKeon, 1749.

McKeon, G.

Canonical formulation of the free spin-2 field. G. McKeon, 2096.

McMullin, J.N.

Two-dimensional hydrodynamic simulations of a laser heated gas target plasma. R.D. Milroy, C.E. Capjack, J.N. McMullin, and C.R. James, 514.

McRae, G.A.

The distortion moment spectrum of GeH_4 : the microwave Q branch. R.H. Kagann, I. Ozier, G.A. McRae, and M.C.L. Gerry, 593.

Meerts, W.L.

The molecular beam electric resonance spectrum of OPF_3 . W.L. Meerts, I. Ozier, and A. Dymanus, 1163.

Mehrotra, S.C.

Study of molecular collisions using a new interpolation scheme. G.K. Johri and S.C. Mehrotra, 69.

Merchant, V.E.

Dependence of fluorescence from laser irradiated SiF_4 on the CO_2 laser wavelength. V.E. Merchant, 1779.

Merdinger, J.C.

Search for isomers in nuclei near $N = 50$. P. Taras, B. Haas, J.C. Merdinger, and J. Styczen, 1775.

Merer, A.J.

Rotational analysis of four bands of the $\gamma'(B^3\Pi-X^3\Delta)$ system of TiO . W.H. Hocking, M.C.L. Gerry, and A.J. Merer, 54.

Mes, H.

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

Meubus, P.

Manifestations et mesures de concentration de métastables dans les jets de plasma d'argon au d'hélium à pression atmosphérique dans les régions de basses températures. M. Fortin et P. Meubus, 1594.

- Migdalek, J.**
Relativistic oscillator strengths for $np^2 \rightarrow np(n+1)s$ transition array of SnI and PbI spectra in jj and intermediate coupling. J. Migdalek, 147.
- Migdalek, J.**
Relativistic Hartree-Fock and model-potential ionization energies and oscillator strengths for transitions in the principal, sharp, and diffuse series of neutral rubidium and silver with allowance for core polarization. J. Migdalek and W.E. Baylis, 1708.
- Millette, P.A.**
New asymptotic expression for the average lifetime of hydrogenic levels. P.A. Millette and Y.P. Varshni, 334.
- Milroy, R.D.**
Two-dimensional hydrodynamic simulations of a laser heated gas target plasma. R.D. Milroy, C.E. Capjack, J.N. McMullin, and C.R. James, 514.
- Mishra, G.P.**
The $A-X$ system of the CuI molecule. G.P. Mishra, S.B. Rai, and K.N. Upadhyaya, 824.
- Misra, K.D.**
Particle aspect analysis of electromagnetic ion cyclotron instability. K.D. Misra and M.S. Tiwari, 1124.
- Mitchell, I.V.**
Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.
- Miyagi, M.**
Excitation and splicing of the step-index W-fiber. M. Miyagi and G.L. Yip, 1319.
- Moffat, J.W.**
Scaling violations and the proton-neutron mass difference. E.M. Haacke and J.W. Moffat, 1565.
- Mondio, G.**
Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.
- Moorcroft, D.R.**
Dependence of radio aurora at 398 MHz on electron density and electric field. D.R. Moorcroft, 687.
- Moore, R.A.**
Comparison of the major force constant models for cubic systems using a self-consistency condition. R.A. Moore and J.C. Upadhyaya, 2053.
- Morbey, C.L.**
Lenses for spectrographs. I. Ordinary glasses. C.L. Morbey and E.H. Richardson, 1362.
- Morgan, F.J.**
Shapes of optical emission lines from atoms excited by fast ion impact. II. Initial experimental results. F.J. Morgan, C.H. Dugan, and R.P. Lowe, 1934.
- Morgan, I.E.**
Brillouin scattering studies of simple liquids: O_2 , N_2 , CO , CH_4 . M.J. Clouter, H. Kieft, and I.E. Morgan, 2178.
- Morioka, Y.**
Absorption spectrum of the H_2S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.
- Morita, T.**
Thermalization of the ideal gas in a one-dimensional box. T. Morita and Y. Fukui, 1103.
- Morris, T.F.**
Electrodynamics of charged scalar solitons. T.F. Morris, 2171.
- Morrow, R.A.**
Simplified derivation of the crossing relations using the substitution rule as a guide. R.A. Morrow, 706.
- Moseley, L.L.**
Real space renormalization and the honeycomb lattice. N. Jan and L.L. Moseley, 1800.
- Mozumder, A.**
Charged particle multiplicity in π^- -nucleus interactions at 50 GeV/c in nuclear emulsion. A. Mozumder, D.P. Goyal, P.K. Sengupta, and S. Singh, 1672.
- Murphy, J.J., II**
The reaction $^{15}N(e, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.
- Murtaza, G.**
Modulational instability of ion acoustic waves in the presence of density gradients. I.R. Durrani, G. Murtaza, and H.U. Rahman, 642.
- Nagler, S.**
Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.

- Naha, S.**
Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.
- Naha, S.C.**
A study of the sphericity in inelastic hadronic reactions at 24 GeV/c with the help of 'principal axis' variables. D.C. Ghosh, S.C. Naha, and T. Roy, 864.
- Naha, S.C.**
Mean charged hadron multiplicities in high energy collisions—a new approach. D.C. Ghosh, S.C. Naha, and T. Roy, 1131.
- Nakagawa, H.**
Drift velocity of holes in germanium and silicon. H. Nakagawa and S. Zukotynski, 1233.
- Nakamura, M.**
Absorption spectrum of the H₂S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.
- Nayyar, V.P.**
Cross focusing of mixed mode operation in an extra dense plasma. V.S. Soni and V.P. Nayyar, 1118.
- Newlin, D.E.**
Chemiluminescence from oxidation of inorganic hydrides; spectrum of TeF. D.E. Newlin, G.W. Stewart, and J.L. Gole, 2217.
- Ngo, T.A.**
Absorption spectrum of the P¹⁸O molecule. ²Σ and ²Δ-X²Π transitions. Perturbation effects on the intensity of lines in the E²Δ-X²Π transition. J.C. Prudhomme, T.A. Ngo, and B. Coquart, 336.
- Nguyen, D.H.**
Study of the effect of light shifts and buffer gas shifts on the hyperfine transition of ⁸⁷Rb: influence on the long term frequency stability of the rubidium maser. J. Vanier, D.H. Nguyen, G. Busca, and M. Têtu, 1380.
- Nguyen Ky, T.**
The linear potential eigenenergy equation. I: the coefficients K_n(3P). A.F. Antippa and T. Nguyen Ky, 417.
- Nguyen Tan, T.**
Analyse comparative à densité variable du profil de la bande ν₃ de CH₄ dans SF₆, Ar et CCl₄. J. Vincent-Geisse, J. Soussen-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.
- Nguyen Thi Hong**
Conformal transformations in spinor space-time. Nguyen Thi Hong, 298.
- Niay, P.**
Détermination des éléments de matrice d'un oscillateur anharmonique: utilisation des relations de commutation dans le cas particulier d'un potentiel de Dunham développé jusqu'au sixième ordre. P. Niay, C. Coquant et P. Bernage, 572.
- Nigam, B.P.**
Callan-Symanzik and Weinberg equations: frame dependence of fixed points. R. Acharya, B.P. Nigam, and Z. Horváth, 1662.
- Noakes, D.R.**
Physical interpretation of and light propagation in the nonsymmetric unified field theory. D.H. Boal and D.R. Noakes, 79.
- Nomicos, C.D.**
Light angular distribution and modulation transfer function of a fluorescent screen excited by an electron beam. G.E. Giakoumakis, C.D. Nomicos, and P.C. Euthymiou, 2190.
- Nuttall, J.**
Existence of partial-wave two-cluster atomic scattering amplitudes. J. Nuttall and S.R. Singh, 449.
- Offermann, P.**
A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He⁺ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.
- Ogram, G.L.**
Interactions between cylindrical bodies and supersonic flowing plasmas: measurements in the front and rear stagnation regions for a cylinder in cross-flow. G.L. Ogram, J.-S. Chang, and R.M. Hobson, 186.
- Ohtsuka, Y.**
Optical coherence modulation by two ultrasonic waves. Y. Ohtsuka, 1420.
- Ojha, S.P.**
Cross section for the excitation of helium by protons. S.P. Ojha and P. Tiwari, 1174.
- Okon, O.B.**
Level structure of ¹⁰⁵Ag. M.K. Dewanjee, O.B. Okon, H. Bakhru, and I.L. Preiss, 1495.
- Olin, A.**
The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.
- Olszewski, S.**
Possible ferromagnetism of a free-electron pair. S. Olszewski, 243.

O'Neill, J.A.

Beam-foil lifetime measurements for some $2p^3\ nI$ terms of singly-ionized fluorine. E.H. Pinnington, R.N. Gosselin, D.J.G. Irwin, and J.A. O'Neill, 1046.

Ong, S.H.

Thermal depolarization in crystals of $\text{CaF}_2:\text{Na}^+$, $\text{SrF}_2:\text{Na}^+$, and $\text{BaF}_2:\text{K}^+$. S.H. Ong and P.W.M. Jacobs, 1031.

Orth, R.

π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdicker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Ozier, I.

The distortion moment spectrum of GeH_4 , the microwave Q branch. R.H. Kagann, I. Ozier, G.A. McRae, and M.C.L. Gerry, 593.

Ozier, I.

The molecular beam electric resonance spectrum of OPF_3 . W.L. Meerts, I. Ozier, and A. Dymanus, 1163.

Pace, P.

Frequency characteristics of a miniature transversely excited CO_2 laser. P. Pace and M. Lacombe, 1350.

Padjen, R.

The hydrodynamical approximations in the cold nuclear matter. R. Padjen, 99.

Paek, E.G.

Discrimination enhancement in optical pattern recognition by using a modified matched filter. E.G. Paek and S.S. Lee, 1335.

Pai, H.L.

Empirical formulas for 14 MeV neutron induced (n, α) cross sections. H.L. Pai and D.G. Andrews, 703.

Pal, S.R.

Laser backscattering from turbid liquids. S.R. Pal, A.I. Carswell, and K.S. Jammu, 1414.

Panar, J.D.

The nuclear structure of ^{166}Er . J.D. Panar and D.G. Burke, 1999.

Pantis, G.

Assignment of $J^\pi = 1^-$ for the 5.048 MeV level of ^{16}N . G. Pantis and D.W.L. Sprung, 132.

Pantis, G.

Off-shell resonances in coupled channel problems. G. Pantis, 801.

Patera, J.

Random walk and $SU(2)$ Clebsch-Gordon coefficients. F. Lemire and J. Patera, 2050.

Pathria, R.K.

Cooperative behaviour in a nonlinear model of diffusion of information. Karmeshu and R.K. Pathria, 1572.

Patil, V.U.

Coulomb excitation of low-energy levels in ^{45}Sc . V.U. Patil and R.G. Kulkarni, 1196.

Paul, D.A.L.

On the theory of positron drift in a uniform electric field. D.A.L. Paul and J.-S. Tsai, 1667.

Pearce, R.M.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

Pechlaner, E.

Relativistic spin-spin interaction of two concentric shells. E. Pechlaner, 2185.

Perillo, P.

Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.

Perz, J.M.

The effect of hydrostatic pressure on the Fermi surface of white tin. J.M. Perz and I.M. Templeton, 884.

Petelenz, P.

Binding energy of the Wannier exciton-ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.

Petit, P.

Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.

Pham, D.-L.

Elastic and inelastic scattering of 40 MeV polarized protons from ^{90}Zr and ^{92}Zr . R. de Swiniarski, D.-L. Pham, G. Bagieu, and H.V. Geramb, 540.

Piché, M.

Transverse profile evolution of pulses passing through TEA- CO_2 amplifiers. R. Coulombe, M. Piché, and R. Tremblay, 1356.

Pilon, P.J.

Stark broadening of He I 3965 Å. P.J. Pilon and A.J. Barnard, 1553.

Pinchemel, B.

Rotational analysis of the $A^2\Sigma^+ - X^2\Sigma^+$ transition of $^{27}\text{Al}^{80}\text{Se}$. H. Lavendy and B. Pinchemel, 607.

- Pinnington, E.H.**
Beam-foil lifetime measurements for some $2p^3\ nI$ terms of singly-ionized fluorine. E.H. Pinnington, R.N. Gosselin, D.J.G. Irwin, and J.A. O'Neill, 1046.
- Poll, J.D.**
A note on some integrals useful in collision induced absorption. P. Gibbs, J.L. Hunt, and J.D. Poll, 981.
- Pollak, V.**
Thermally induced retina injury due to high doses of optical radiation. V. Pollak, 1444.
- Pope, N.K.**
Density expansion of the correlation function of a hard sphere gas. D.G. Blair, N.K. Pope, and S. Ranganathan, 466.
- Powell, B.M.**
Phonon dispersion in $\text{Co}_{0.92}\text{Fe}_{0.08}$. E.C. Svensson, B.M. Powell, A.D.B. Woods, and W.-D. Teuchert, 253.
- Preiss, I.L.**
Level structure of ^{105}Ag . M.K. Dewanjee, O.B. Okon, H. Bakhru, and I.L. Preiss, 1495.
- Press, M.**
An analysis of steam flow in a chip refiner. M. Press and A.S. Arrott, 390.
- Prestwich, W.V.**
An experimental investigation of small angle photon elastic scattering. N. Ramanathan, T.J. Kennett, and W.V. Prestwich, 343.
- Prewett, S.V.**
Form factor effects in the $^{18}\text{O}(p,t)^{16}\text{O}$ reaction. J.J. Bevelacqua and S.V. Prewett, 1484.
- Prudhomme, J.C.**
Absorption spectrum of the P^{18}O molecule. $^2\Sigma$ and $^2\Delta-X^2\Pi$ transitions. Perturbation effects on the intensity of lines in the $E^2\Delta-X^2\Pi$ transition. J.C. Prudhomme, T.A. Ngo, and B. Coquart, 336.
- Purcell, A.J.**
Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.
- Purcell, C.J.**
Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.
- Purkait, P.K.**
Apodization of aberrated pupils. L.N. Hazra, P.K. Purkait, and M. De, 1340.
- Puttaswamy, K.S.**
Photoelectric cross sections derived from the total absorption cross sections in the energy range 5-130 keV. K.S. Puttaswamy, R. Gowda, and B. Sanjeevaiah, 92.
- Raga, F.**
Optical spectra in WSe_2 . A. Anedda, E. Fortin, and F. Raga, 368.
- Rahman, H.U.**
Modulational instability of ion acoustic waves in the presence of density gradients. I.R. Durrani, G. Murtaza, and H.U. Rahman, 642.
- Rahman, M.**
(Anti)-neutrino-deuteron scattering and the structure of the weak hadronic neutral currents. M. Rahman, 2201.
- Rai, D.K.**
Structure and analysis of the $B-X$ band system of GaO . B.R. Yadav, S.B. Rai, and D.K. Rai, 496.
- Rai, S.B.**
Structure and analysis of the $B-X$ band system of GaO . B.R. Yadav, S.B. Rai, and D.K. Rai, 496.
- Rai, S.B.**
The $A-X$ system of the CuI molecule. G.P. Mishra, S.B. Rai, and K.N. Upadhyaya, 824.
- Rajput, A.**
Some aspects of thermal and elastic properties of yttrium. R. Ramji Rao and A. Rajput, 120.
- Rajput, A.**
Lattice heat capacity, third-order elastic constants, and thermal expansion of scandium. R. Ramji Rao and A. Rajput, 983.
- Ramanathan, N.**
An experimental investigation of small angle photon elastic scattering. N. Ramanathan, T.J. Kennett, and W.V. Prestwich, 343.
- Ramavataram, K.**
 $g_{9/2}$ isobaric analogue resonances in $^{64.66}\text{Zn}(p,\gamma)$ reactions. C. Rangacharyulu, I.M. Szöghy, C. St-Pierre, and K. Ramavataram, 733.
- Rambo, A.**
The preparation and passive annealing of Cd_3As_2 platelets. A. Rambo and M.J. Aubin, 2093.
- Ramji Rao, R.**
Some aspects of thermal and elastic properties of yttrium. R. Ramji Rao and A. Rajput, 120.
- Ramji Rao, R.**
Lattice heat capacity, third-order elastic constants, and thermal expansion of scandium. R. Ramji Rao and A. Rajput, 983.

Ramsay, D.A.

The electronic absorption spectrum of NDH. D.A. Ramsay and F.D. Wayne, 761.

Ramsay, D.A.

The magnetic rotation spectrum of formaldehyde: singlet-triplet perturbations in the 4^1 and 4^3 levels of the \tilde{A}^1A_2 state of H_2CO . D.A. Ramsay and S.M. Till, 1224.

Ramsay, D.A.

High resolution studies of the \tilde{A}^1A_2 - \tilde{X}^1A_1 system of ^{13}C -formaldehyde. F.W. Birss, R.M. Gordon, D.A. Ramsay, and S.M. Till, 1676.

Rangacharyulu, C.

$g_{9/2}$ isobaric analogue resonances in $^{64.66}Zn(p,\gamma)$ reactions. C. Rangacharyulu, I.M. Szöghy, C. St-Pierre, and K. Ramavataram, 733.

Ranganathan, S.

Density expansion of the correlation function of a hard sphere gas. D.G. Blair, N.K. Pope, and S. Ranganathan, 466.

Rastall, P.

The Newtonian theory of gravitation and its generalization. P. Rastall, 944.

Rastogi, A.

Lattice dynamics of sulphur dioxide using a rigid molecule model. A. Rastogi, A. Anderson, and J.W. Leech, 2120.

Razavi, F.S.

Open orbits in ReO_3 . F.S. Razavi and W.R. Datars, 860.

Razavy, M.

Quantum-mechanical irreversible motion of an infinite chain. M. Razavy, 1731.

Razavy, M.

Application of finite difference methods to the inverse problem of wave propagation. M. Hron and M. Razavy, 1843.

Razavy, M.

Exact and Glauber amplitudes in multi-channel scattering. W. van Dijk and M. Razavy, 1952.

Read, L.A.A.

Displacement of a microwave beam upon transmission through a dielectric slab. L.A.A. Read and G.E. Reesor, 1409.

Reesor, G.E.

Displacement of a microwave beam upon transmission through a dielectric slab. L.A.A. Read and G.E. Reesor, 1409.

Reichert, J.K.

Features of a developing turbulent boundary layer measured in a bounded flow. J.K. Reichert and R.S. Azad, 477.

Richardson, E.H.

Lenses for spectrographs. I. Ordinary glasses. C.L. Morbey and E.H. Richardson, 1362.

Richardson, E.H.

Some features of the Canada-France-Hawaii telescope. I. Before-foci optical design. E.H. Richardson, 1365.

Robertson, L.P.

π^+ -p elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Robiette, A.G.

Measurement and analysis of the ν_2 and ν_4 infrared bands of CD_4 . W.A. Kreiner and A.G. Robiette, 1969.

Robinson, A.M.

High temperature absorption on the $P(26)$ - $P(32)$ CO_2 laser transitions. A.M. Robinson, 1896.

Roger, W.A.

Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

Rogiers, J.

The spin $\frac{1}{2}$ XY model. III. Analysis of high temperature series expansions of some thermodynamic quantities in two dimensions. J. Rogiers, E.W. Grundke, and D.D. Betts, 1719.

Roosen, G.

La lévitation optique des sphères. G. Roosen, 1260.

Rosenberg, A.

On nuclear spin statistics in rotational transition intensities in tetrahedral AB_4 molecules. A. Rosenberg and J. Susskind, 1081.

Rostas, J.

The emission spectrum of the CO_2^+ ion: rovibronic analysis of the $\tilde{A}^2\Pi_u$ - $\tilde{X}^2\Pi_g$ band system. D. Gauyacq, C. Larcher, and J. Rostas, 1634.

Rostworowski, J.A.

Piezospectroscopic studies of phosphorus-, boron-, and lithium-doped silicon. M.L.W. Thewalt, J.A. Rostworowski, and G. Kirzenow, 1898.

Rovea, S.

Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.

- Roy, J.**
Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.
- Roy, T.**
A study of the sphericity in inelastic hadronic reactions at 24 GeV/c with the help of 'principal axis' variables. D.C. Ghosh, S.C. Naha, and T. Roy, 864.
- Roy, T.**
Mean charged hadron multiplicities in high energy collisions—a new approach. D.C. Ghosh, S.C. Naha, and T. Roy, 1131.
- Roy, T.**
Cluster production in hadron-nucleus interaction at cosmic-ray energies. D. Ghosh, S. Naha, J. Roy, A. Bhattacharjee, and T. Roy, 2026.
- Roychoudhury, R.K.**
Energy spectra of secondary gamma rays at different atmospheric depths. D.P. Bhattacharyya and R.K. Roychoudhury, 582.
- Roychoudhury, R.K.**
Relation between the primary proton energy and the produced pion energy in p-p inelastic interactions in terms of the Landau parameter. R.K. Roychoudhury and D.P. Bhattacharyya, 586.
- Rud, N.**
Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.
- Rushton, A.M.**
Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.
- Russell, D.K.**
Analysis of the 118.6 μm laser magnetic resonance spectra of PH, $X^3\Sigma^-$ and $a^1\Delta$. P.B. Davies, D.K. Russell, D.R. Smith, and B.A. Thrush, 522.
- Sabev, C.**
Elastic scattering of 29 MeV negative pions from ^{208}Pb . R.R. Johnson, T. Marks, T.G. Masterson, B. Basselleck, K.L. Erdman, W. Gyles, D. Gill, and C. Sabev, 775.
- Sabev, C.**
The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.
- St-Pierre, C.**
 $g_{9/2}$ isobaric analogue resonances in $^{64,66}\text{Zn}(p,\gamma)$ reactions. C. Rangacharyulu, I.M. Szöghy, C. St-Pierre, and K. Ramavataram, 733.
- Saitta, G.**
Optical transitions in the modulated reflectivity spectrum of ion-implanted GaAs. U. Giorgianni, V. Grasso, G. Mondio, P. Perillo, and G. Saitta, 917.
- Salomon, M.**
 $\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.
- Sanjeevaiah, B.**
Photoelectric cross sections derived from the total absorption cross sections in the energy range 5–130 keV. K.S. Puttaswamy, R. Gowda, and B. Sanjeevaiah, 92.
- Sasanuma, M.**
Absorption spectrum of the H_2S molecule in the vacuum ultraviolet region. H. Masuko, Y. Morioka, M. Nakamura, E. Ishiguro, and M. Sasanuma, 745.
- Sastry, K.V.L.N.**
The microwave spectrum of the OH $X^2\Pi$ radical in the ground and vibrationally-excited ($v \leq 6$) levels. J.A. Coxon, K.V.L.N. Sastry, J.A. Austin, and D.H. Levy, 619.
- Sastry, V.V.S.S.**
Diffraction of a cylindrical pulse by a half plane under mixed boundary conditions. A. Chakrabarti and V.V.S.S. Sastry, 1324.
- Savard, J.-Y.**
Effects of coherently excited Zeeman transitions on a hydrogen maser hyperfine transition. J.-Y. Savard, G. Busca, S. Rovea, M. Desaintfuscien, and P. Petit, 904.
- Scherk, L.R.**
An improved value for the electron affinity of the negative hydrogen ion. L.R. Scherk, 558.
- Schmeing, H.**
The weak neutral current: search for a 0^- isomer in ^{42}Sc and ^{46}V . K.P. Jackson, R.E. Azuma, I. Berka, T. Faestermann, J.S. Geiger, J.C. Hardy, and H. Schmeing, 411.

Sengupta, P.K.

Charged particle multiplicity in π^- -nucleus interactions at 50 GeV/c in nuclear emulsion. A. Mozumder, D.P. Goyal, P.K. Sengupta, and S. Singh, 1672.

Shahabuddin, M.A.M.

Use of $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ analyzing power. M.A.M. Shahabuddin, L. Buja-Bijunas, W.R. Stott, and J.C. Waddington, 505.

Shahabuddin, M.A.M.

Possible structure dependence in the $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ reaction. M.A.M. Shahabuddin and J.C. Waddington, 1949.

Shakher, C.

Fringe control techniques applied to holographic non-destructive testing (HNDT). C. Shakher and R.S. Sirohi, 2155.

Sharma, K.S.

Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.

Sharma, K.S.

Precise atomic masses for titanium. K.S. Kozier, K.S. Sharma, R.C. Barber, J.W. Barnard, R.J. Ellis, V.P. Derenchuk, and H.E. Duckworth, 266.

Sharma, S.R.

Effect of ion-tail formation on the resistivity of a turbulent plasma. H.C. Jain and S.R. Sharma, 1807.

Sherif, H.S.

Erratum: Optical model analysis of $p + ^4\text{He}$ elastic scattering at intermediate energies. S.W.-L. Leung and H.S. Sherif, 601.

Shin, Y.M.

The reaction $^{15}\text{N}(e, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.

Shizgal, B.

On the statistical mechanical interpretation of the translational energy dependence of rate processes. B. Shizgal and J.M. Fitzpatrick, 486.

Shukla, R.C.

Non-linear self-consistent screening applied to metallic hydrogen. M.D. Whitmore, J.P. Carbotte, and R.C. Shukla, 1185.

Siegel, R.T.

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

Sieminski, M.

Polarization in deuteron stripping on ^{12}C at low energy. M. Sieminski, M. Sosnowski, and P. Zupranski, 292.

Simpson, A.M.

Temperature dependence of the elastic constants of holmium between 80 and 140 K. A.M. Simpson, M.H. Jericho, and W.A. Roger, 385.

Singh, S.

Charged particle multiplicity in π^- -nucleus interactions at 50 GeV/c in nuclear emulsion. A. Mozumder, D.P. Goyal, P.K. Sengupta, and S. Singh, 1672.

Singh, S.R.

Existence of partial-wave two-cluster atomic scattering amplitudes. J. Nuttall and S.R. Singh, 449.

Singhal, N.C.

Levels in ^{148}Tb excited by the $(^6\text{Li}, xn)$ and $(^{10}\text{B}, xn)$ reactions. N.C. Singhal and M.W. Johns, 358.

Singhal, N.C.

Study of high spin states in ^{149}Tb observed by the $(^{10}\text{B}, 3n)$ reaction. N.C. Singhal, M.W. Johns, and J.V. Thompson, 1959.

Sinha, K.N.

A study of the $^{34}\text{S}(\alpha, \gamma)^{38}\text{Ar}$ reaction. K.N. Sinha, A.G. Hwang, H.-B. Mak, and H.C. Evans, 781.

Sink, M.L.

A theoretical study of the $B^2\Sigma^+ - X^2\Sigma^+$ band system in MgH and MgD. M.L. Sink and A.D. Bandrauk, 1178.

Sirohi, R.S.

Fringe control techniques applied to holographic non-destructive testing (HNDT). C. Shakher and R.S. Sirohi, 2155.

Sivasankar, V.S.

Thermal stability of some radiation damage products in X-irradiated NaClO_3 . V.S. Sivasankar and P.W. Whippey, 128.

Sivasankar, V.S.

Method of Gaussian quadrature in the calculation of optical absorption and magnetic circular dichroism spectra of s^2 ions in alkali halide crystals: application to KBr:In^+ . Y. Kamishina, V.S. Sivasankar, and P.W.M. Jacobs, 1614.

Skalinski, P.

Disorientation of $^{42}\text{K}_{1/2}$ potassium atoms, induced in resonant collisions. P. Skalinski and L. Krause, 2222.

Skarsgard, H.M.

Spectroscopic investigation of plasma turbulence. Y.S. Al-Shiraida, A. Hirose, and H.M. Skarsgard, 845.

Skopik, D.M.

The reaction $^{15}\text{N}(e, t_0)$ between 20 and 25 MeV. J. Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.

- Smith, D.R.**
Analysis of the 118.6 μm laser magnetic resonance spectra of PH, $X^3\Sigma^-$ and $a^1\Delta$. P.B. Davies, D.K. Russell, D.R. Smith, and B.A. Thrush, 522.
- Smith, V.H., Jr.**
Binding energy of the Wannier exciton - ionized donor complex in the CdS crystal. P. Petelenz and V.H. Smith, Jr., 2126.
- Soni, V.S.**
Cross focusing of mixed mode operation in an extra dense plasma. V.S. Soni and V.P. Nayyar, 1118.
- Sosnowski, M.**
Polarization in deuteron stripping on ^{12}C at low energy. M. Sieminski, M. Sosnowski, and P. Zupranski, 292.
- Soussen-Jacob, J.**
Analyse comparative à densité variable du profil de la bande ν_3 de CH_4 dans SF_6 , Ar et CCl_4 . J. Vincent-Geisse, J. Soussen-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.
- Spanos, T.J.T.**
The surface conditions for viscous displacement in a homogeneous porous medium. T.J.T. Spanos, 1738.
- Sperry, W.C.**
The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.
- Sprung, D.W.L.**
Assignment of $J^\pi = 1^-$ for the 5.048 MeV level of ^{16}N . G. Pantis and D.W.L. Sprung, 132.
- Sprung, D.W.L.**
Erratum: A note on the calculation of $\langle J^2 \rangle$. M. Vallieres, S.G. Lie, and D.W.L. Sprung, 601.
- Srivastava, R.P.**
Effect of external static perturbation on radiative decay of a two-level atom. R.P. Srivastava, 1157.
- Staal, P.R.**
Far-infrared dispersive-reflection measurements on NaCl, compared with calculations based on cubic and quartic anharmonicity. II. Low temperature. P.R. Staal and J.E. Eldridge, 1784.
- Stewart, G.W.**
Chemiluminescence from oxidation of inorganic hydrides; spectrum of TeF. D.E. Newlin, G.W. Stewart, and J.L. Gole, 2217.
- Stoicheff, B.P.**
Passive mode-locking of a KrF excimer laser. T. Efthimiopoulos, J. Banic, and B.P. Stoicheff, 1437.
- Stoicheff, B.P.**
Doppler-free two-photon absorption spectrum of rubidium. B.P. Stoicheff and E. Weinberger, 2143.
- Stott, W.R.**
Use of $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ analyzing power. M.A.M. Shahabuddin, L. Buja-Bijunas, W.R. Stott, and J.C. Waddington, 505.
- Strathy, I.K.M.**
Improved laser frequencies and Dunham coefficients for isotopically substituted carbon monoxide. R.M. Dale, M. Herman, J.W.C. Johns, A.R.W. McKellar, S. Nagler, and I.K.M. Strathy, 677.
- Straume, O.**
Single-proton states in ^{155}Eu . D.G. Burke, G. Løvnhøiden, O. Straume, E.R. Flynn, and J.W. Sunier, 271.
- Stringat, R.**
Vibrational analysis of the $A^2\Pi - X^2\Sigma$ and $B^2\Sigma - X^2\Sigma$ transitions of YS and rotational analysis of the $B-X(0,0)$ band. R. Stringat, B. Fenot, and J-L. Féménias, 300.
- Stroink, G.**
Rotation induced electromotive forces in normal and superconducting metals. B.L. Blackford, M.G. Calkin, A.J. Purcell, C.J. Purcell, and G. Stroink, 39.
- Styczen, J.**
Search for isomers in nuclei near $N = 50$. P. Taras, B. Haas, J.C. Merdinger, and J. Styczen, 1775.
- Suk, H.C.**
Single electron capture by N_1^{2+} in rare gas targets between 60 keV and 200 keV. B. Hird, H.C. Suk, and S.P. Ali, 2078.
- Sung, S.H.**
Antiferromagnetism in amorphous alloys containing rare-earth atoms. II. Monte Carlo studies. S.H. Sung, R. Harris, and M.J. Zuckermann, 107.
- Sunier, J.W.**
Single-proton states in ^{155}Eu . D.G. Burke, G. Løvnhøiden, O. Straume, E.R. Flynn, and J.W. Sunier, 271.
- Susskind, J.**
On nuclear spin statistics in rotational transition intensities in tetrahedral AB_4 molecules. A. Rosenberg and J. Susskind, 1081.
- Svensson, E.C.**
Phonon dispersion in $\text{Co}_{0.92}\text{Fe}_{0.08}$. E.C. Svensson, B.M. Powell, A.D.B. Woods, and W.-D. Teuchert, 253.
- Swanson, M.L.**
A comparison of radiation damage in Al by channeled and random beams of 0.6 MeV He^+ ions. M.L. Swanson, P. Offermann, and K.H. Ecker, 457.

Szöghy, I.M.

$g_{9/2}$ isobaric analogue resonances in $^{64,66}\text{Zn}(p,\gamma)$ reactions. C. Rangacharyulu, I.M. Szöghy, C. St-Pierre, and K. Ramavataaram, 733.

Tam, W.G.

Iterative method for treating multiple scattering in fogs. A. Zardecki and W.G. Tam, 1301.

Tannous, C.

The spin-Peierls transition of the $X-Y$ model in a magnetic field. C. Tannous and A. Caillé, 508.

Taole, S.H.

Volume forces in simple metals. S.H. Taole and H.R. Glyde, 1870.

Taras, P.

Search for isomers in nuclei near $N = 50$. P. Taras, B. Haas, J.C. Merdinger, and J. Styczen, 1775.

Teichmann, J.

Parametric study of dissipative drift modes and their dynamic stabilization in a weakly ionized plasma. C. Boucher, S.Q. Mah, H.W.H. Van Andel, and J. Teichmann, 739.

Templeton, I.M.

The effect of hydrostatic pressure on the Fermi surface of white tin. J.M. Perz and I.M. Templeton, 884.

Têtu, M.

Study of the effect of light shifts and buffer gas shifts on the hyperfine transition of ^{87}Rb : influence on the long term frequency stability of the rubidium maser. J. Vanier, D.H. Nguyen, G. Busca, and M. Têtu, 1380.

Teuchert, W.-D.

Phonon dispersion in $\text{Co}_{0.92}\text{Fe}_{0.08}$. E.C. Svensson, B.M. Powell, A.D.B. Woods, and W.-D. Teuchert, 253.

Thewalt, M.L.W.

Piez spectroscopic studies of phosphorus-, boron-, and lithium-doped silicon. M.L.W. Thewalt, J.A. Rostworowski, and G. Kirzenow, 1898.

Thomas, A.W.

Erratum: The strong interaction shift in pionic ^3He . A.W. Thomas, 2052.

Thompson, J.V.

Study of high spin states in ^{149}Tb observed by the $(^{10}\text{B},3n)$ reaction. N.C. Singhal, M.W. Johns, and J.V. Thompson, 1959.

Thrush, B.A.

Analysis of the 118.6 μm laser magnetic resonance spectra of PH , $X^3\Sigma^+$ and $a^1\Delta$. P.B. Davies, D.K. Russell, D.R. Smith, and B.A. Thrush, 522.

Till, S.M.

The vibrational Raman spectrum of compressed solid hydrogen. E.J. Allin and S.M. Till, 442.

Till, S.M.

The magnetic rotation spectrum of formaldehyde: singlet-triplet perturbations in the 4^1 and 4^3 levels of the \bar{A}^1A_2 state of H_2CO . D.A. Ramsay and S.M. Till, 1224.

Till, S.M.

High resolution studies of the $\bar{A}^1A_2-\bar{X}^1A_1$ system of ^{13}C -formaldehyde. F.W. Birss, R.M. Gordon, D.A. Ramsay, and S.M. Till, 1676.

Tiwari, M.S.

Particle aspect analysis of electromagnetic ion cyclotron instability. K.D. Misra and M.S. Tiwari, 1124.

Tiwari, P.

Cross section for the excitation of helium by protons. S.P. Ojha and P. Tiwari, 1174.

Tomishima, Y.

A remark on Moore's new method of obtaining approximate solutions of the Dirac equation. Y. Tomishima, 2114.

Trainor, L.E.H.

Nonequilibrium ensembles of self-organizing systems: a simulation study. C.J. Lumsden and L.E.H. Trainor, 23.

Tremblay, G.

Métrie de bancs d'optique. Application au cas particulier d'un spectromètre à réseau concave disposé selon le montage de Rowland. C. Delisle, G. Bouillon et G. Tremblay, 1291.

Tremblay, R.

Etude comparée des caractéristiques d'un laser à double décharge et d'un laser à photopréionisation à pression supracritique. M. Blanchard, R. Tremblay, M. Cormier et R. Beaulieu, 168.

Tremblay, R.

Transverse profile evolution of pulses passing through TEA- CO_2 amplifiers. R. Coulombe, M. Piché, and R. Tremblay, 1356.

Tsai, J.-S.

On the theory of positron drift in a uniform electric field. D.A.L. Paul and J.-S. Tsai, 1667.

Tsang, K.K.

Fluorescence decay rates of $\text{X}_2\text{UO}_2\text{Cl}_4$, $\text{X} = \text{Cs, Rb, and K}$. A.F. Leung and K.K. Tsang, 330.

Tsuboi, T.

New trapped-electron and trapped-hole centres in X-rayed KCl:Tl^+ crystals. T. Tsuboi, 1510.

- Uegaki, J.**
The reaction $^{15}\text{N}(\text{e},\text{t}_0)$ between 20 and 25 MeV. J.Uegaki, J. Asai, M.K. Leung, J.J. Murphy II, Y.M. Shin, and D.M. Skopik, 1059.
- Upadhyaya, K.N.**
The $A-X$ system of the CuI molecule. G.P. Mishra, S.B. Rai, and K.N. Upadhyaya, 824.
- Upadhyaya, J.C.**
Comparison of the major force constant models for cubic systems using a self-consistency condition. R.A. Moore and J.C. Upadhyaya, 2053.
- Vallieres, M.**
Erratum: A note on the calculation of $\langle J^2 \rangle$. M. Vallieres, S.G. Lie, and D.W.L. Sprung, 601.
- Valluri, S.R.**
On the differential scattered power due to the nonlinear scattering of light for ultra strong fields. S.R. Valluri and P. Bhartia, 2132.
- Van Anel, H.W.H.**
Parametric study of dissipative drift modes and their dynamic stabilization in a weakly ionized plasma. C. Boucher, S.Q. Mah, H.W.H. Van Anel, and J. Teichmann, 739.
- Van Anel, H.W.H.**
Enhanced plasma losses due to collisional drift waves and their reduction by dynamic stabilization in a weakly ionized plasma. S.Q. Mah and H.W.H. Van Anel, 1890.
- van den Berg, P.M.**
Spectral theory of diffraction of electromagnetic waves by a strip in the plane interface of two semi-infinite media. J.M. van Splunter and P.M. van den Berg, 1148.
- van Dijk, W.**
Exact and Glauber amplitudes in multi-channel scattering. W. van Dijk and M. Razavy, 1952.
- van Driel, H.M.**
A variable shear interferometer employing correlated diffusers for measuring optical transfer functions. C.P. Grover and H.M. van Driel, 1370.
- Vanier, J.**
Study of the effect of light shifts and buffer gas shifts on the hyperfine transition of ^{87}Rb : influence on the long term frequency stability of the rubidium maser. J. Vanier, D.H. Nguyen, G. Busca, and M. Têtu, 1380.
- van Kleef, Th.A.M.**
 $4d^{9/5s} - 4d^{9/5p}$ transitions in Sb VI and Te VII. Th.A.M. van Kleef and Y.N. Joshi, 1073.
- van Kleef, Th.A.M.**
The $4d^{9/5d}$ and $4d^{9/6s}$ configurations in Sb VI and the $4d^{9/5d}$ configuration in Te VII. Y.N. Joshi and Th.A.M. van Kleef, 1982.
- Van Kranendonk, J.**
Elastic constants and anisotropic pair correlations in solid hydrogen and deuterium. S. Luryi and J. Van Kranendonk, 136.
- Van Kranendonk, J.**
Renormalized interactions in solid hydrogen and analysis of the ortho-pair level structure. S. Luryi and J. Van Kranendonk, 307.
- Van Kranendonk, J.**
Theory of crystal-field interactions in solid hydrogen. I. Single ortho impurities in solid para-hydrogen. S. Luryi and J. Van Kranendonk, 933.
- van Splunter, J.M.**
Spectral theory of diffraction of electromagnetic waves by a strip in the plane interface of two semi-infinite media. J.M. van Splunter and P.M. van den Berg, 1148.
- Varshni, Y.P.**
New asymptotic expression for the average lifetime of hydrogenic levels. P.A. Millette and Y.P. Varshni, 334.
- Vedam, K.**
General shifted reference holography. C.S. Vikram and K. Vedam, 1397.
- Venkatasubramanian, V.S.**
Operation of a long helium jet transport system with solid, monodisperse aerosols. V.S. Venkatasubramanian, R.C. Barber, R.J. Ellis, V.P. Derenchuk, K.S. Sharma, and H.E. Duckworth, 88.
- Vikram, C.S.**
General shifted reference holography. C.S. Vikram and K. Vedam, 1397.
- Vincent, D.**
Optique bidimensionnelle en couche mince. D. Vincent et J.W.Y. Lit, 45.
- Vincent, D.**
Disque optique en couche mince. D. Vincent et J.W.Y. Lit, 1309.
- Vincent-Geisse, J.**
Analyse comparative à densité variable du profil de la bande ν_3 de CH_4 dans SF_6 , Ar et CCl_4 . J. Vincent-Geisse, J. Soussen-Jacob, T. Nguyen Tan et R.E.D. McClung, 564.
- Viswanathan, K.S.**
Helicon-phonon interaction for potassium. R. Idiculla and K.S. Viswanathan, 353.

Vosko, S.H.

Calculations of the spin susceptibilities and their volume dependence for Li, Na, and K. L. Wilk, A.H. MacDonald, and S.H. Vosko, 1065.

Waddington, J.C.

Use of $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ analyzing power. M.A.M. Shahabuddin, L. Buja-Bijunas, W.R. Stott, and J.C. Waddington, 505.

Waddington, J.C.

Possible structure dependence in the $^{30}\text{Si}(\vec{p}, \alpha)^{27}\text{Al}$ reaction. M.A.M. Shahabuddin and J.C. Waddington, 1949.

Wagner, G.

Multiphoton ionization of Li at the ruby laser wavelength. G. Wagner and N.R. Isenor, 1770.

Waksberg, A.

Laser propagation statistics in the Montreal area. A. Waksberg and W.R.L. Clements, 1401.

Walker, R.B.

Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.

Ward, D.

Systematics for the Z_1 -oscillation in stopping powers of various solid materials. D. Ward, H.R. Andrews, I.V. Mitchell, W.N. Lennard, R.B. Walker, and N. Rud, 645.

Wayne, F.D.

The electronic absorption spectrum of NDH. D.A. Ramsay and F.D. Wayne, 761.

Wei, J.S.

Guided optics techniques for investigation of films. W.D. Westwood and J.S. Wei, 1247.

Weichman, F.L.

Electroluminescence from single crystal Cu_2O diodes. K.T. Chee, T. Keowsim, and F.L. Weichman, 988.

Weinberger, E.

Doppler-free two-photon absorption spectrum of rubidium. B.P. Stoicheff and E. Weinberger, 2143.

Welsh, H.L.

High resolution rotation-vibration Raman spectra of benzene. III. The spectrum C_6D_6 . A.B. Hollinger, H.L. Welsh, and K.S. Jammu, 767.

Welsh, R.E.

Muonic X-ray intensities in low-Z elements and their hydrides. C.R. Cox, G.W. Dodson, M. Eckhause, R.D. Hart, J.R. Kane, A.M. Rushton, R.T. Siegel, R.E. Welsh, A.L. Carter, M.S. Dixit, E.P. Hincks, C.K. Hargrove, and H. Mes, 1746.

Wentzell, R.A.

On the observed gauge pressure due to the action of a tension pulse on a bubble in a viscous incompressible liquid. G.J. Lastman and R.A. Wentzell, 553.

Westlund, W.

$\pi^+ - p$ elastic scattering at 47.9 MeV. E.G. Auld, D. Axen, J. Beveridge, C. Duesdieker, L. Felawka, C.H.Q. Ingram, R.R. Johnson, G. Jones, D. LePatourel, R. Orth, M. Salomon, W. Westlund, and L.P. Robertson, 73.

Westwood, W.D.

Guided optics techniques for investigation of films. W.D. Westwood and J.S. Wei, 1247.

Whippey, P.W.

Thermal stability of some radiation damage products in X-irradiated NaClO_3 . V.S. Sivasankar and P.W. Whippey, 128.

Whitmore, M.D.

Non-linear self-consistent screening applied to metallic hydrogen. M.D. Whitmore, J.P. Carbotte, and R.C. Shukla, 1185.

Wick, A.

Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.

Wiegand, C.

The variation of pionic X-ray intensity with atomic number. R.M. Pearce, G.A. Beer, M.S. Dixit, S.K. Kim, J.A. Macdonald, G.R. Mason, A. Olin, C. Sabev, W.C. Sperry, and C. Wiegand, 2084.

Wilk, L.

Calculations of the spin susceptibilities and their volume dependence for Li, Na, and K. L. Wilk, A.H. MacDonald, and S.H. Vosko, 1065.

Williams, J.G.

Stringlike solitons in toroidal coordinates. J.G. Williams, 590.

Wilson, B.G.

Rocket attitude determination by a Fourier method. D.W. Green and B.G. Wilson, 728.

Woloshyn, R.M.

Weak interaction effects in low energy pion photoproduction. R.M. Woloshyn, 809.

Wood, B.M.

Time dependence of spin conversion in solid $^{13}\text{CH}_3\text{D}$ by nuclear magnetic resonance. J. Higinbotham, B.M. Wood, and R.F. Code, 1752.

- Woods, A.D.B.**
Phonon dispersion in $\text{Co}_{0.92}\text{Fe}_{0.08}$. E.C. Svensson, B.M. Powell, A.D.B. Woods, and W.-D. Teuchert, 253.
- Woolley, J.C.**
Electrical transport and band structure of GaAs. H.J. Lee, J. Basinski, L.Y. Juravel, and J.C. Woolley, 233.
- Woolley, J.C.**
Re-examination of high pressure electron transport properties of GaAs. H.J. Lee and J.C. Woolley, 1929.
- Yadav, B.R.**
Structure and analysis of the $B-X$ band system of GaO. B.R. Yadav, S.B. Rai, and D.K. Rai, 496.
- Yadav, V.R.**
Electrical transport in gadolinium iron garnet (GdIG). V.R. Yadav and H.B. Lal, 1204.
- Yip, G.L.**
Excitation and splicing of the step-index W-fiber. M.Miyagi and G.L. Yip, 1319.
- Young, D.J.**
Uphill diffusion associated with a flux of extrinsic vacancies. D.J. Young, E. Delamotte, and J.S. Kirkaldy, 722.
- Zaidi, H.R.**
A propagator approach for the calculation on nonlinear susceptibilities. H.R. Zaidi, 1518.
- Zaidi, H.R.**
Inelastic collisions and fluorescence in gases. H.R. Zaidi, 1530.
- Zaifman, L.F.**
The harmonic oscillator approximation to the density matrix. R.K. Bhaduri and L.F. Zaifman, 1990.
- Zardecki, A.**
Iterative method for treating multiple scattering in fogs. A. Zardecki and W.G.Tam, 1301.
- Zepp, G.**
Les modes non de révolution dans les guides d'ondes corrugués. J.P. Buge, G. Fabre, A. Wick et G. Zepp, 152.
- Zuckermann, M.J.**
Antiferromagnetism in amorphous alloys containing rare-earth atoms. II. Monte Carlo studies. S.H. Sung, R. Harris, and M.J. Zuckermann, 107.
- Zukotynski, S.**
Drift velocity of holes in germanium and silicon. H. Nakagawa and S. Zukotynski, 1233.
- Zupranski, P.**
Polarization in deuteron stripping on ^{12}C at low energy. M. Sieminski, M. Sosnowski, and P. Zupranski, 292.

